

FINAL REPORT

ENGINEERING DURING CONSTRUCTION
AND QUALITY ASSURANCE
FOR RELIEF WELLS
TOWNSHEND LAKE
TOWNSHEND, VERMONT

New England Division
Corps of Engineers

May 1, 1986

Prepared for

U.S. Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, Massachusetts 02254

by

Geotechnical Engineers Inc.
1017 Main Street
Winchester, Massachusetts 01890
(617) 729-1625

Project 85751

Stephen L. Whiteside
Stephen L. Whiteside, P.E.
Project Manager

Ronald C. Hirschfeld
Ronald C. Hirschfeld, P.E.
President

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1. INTRODUCTION

1.1 Purpose

This report summarizes the Engineering During Construction and Quality Assurance (EDC/QA) services provided by Geotechnical Engineers Inc. (GEI) for the relief well installation, development and pump testing at Townshend Lake, Townshend, Vermont. Relief well installation, development and pump testing was performed by the R. E. Chapman Company for the New England Division, Corps of Engineers (NED-CE).

1.2 Scope

The scope of work performed for this project was as follows:

1. Review plans and specifications for the construction of remedial measures.
2. Provide full-time on-site EDC/QA during relief well installation, development, and pump testing.
3. Prepare an engineering report summarizing the relief well installation, development, and pump testing.

1.3 Authorization

The services provided by GEI were authorized in the contract for Delivery Order No. 5 under Contract DACW33-85-D-0010 dated August 20, 1985.

1.4 Available Data

The following plans and specifications entitled "Remedial Measures for Seepage Control - Relief Wells, Townshend Lake, Townshend, Vermont" were provided by the NED-CE:

- | | | |
|---------|---------|--|
| CON-261 | Sheet 1 | - General Plan and Index |
| CON-261 | Sheet 2 | - Plans and Details |
| CON-261 | Sheet 3 | - Sections and Details |
| CON-87 | Sheet 3 | - Downstream Treatment - Plan |
| CON-87 | Sheet 5 | - Control Weir and Dike Outlet Channel - Slope Treatment |

CON-87 Sheet 8 - Record of Explorations

SPECIFICATION NO. - DACW33-85-B-0029

AMENDMENT NO. 1 - Subsurface Investigations

1.5 Personnel

The following personnel at GEI were involved with the field observation of relief well installation, development and pump testing, and preparation of the report for this project:

Principal-in-Charge	Ronald C. Hirschfeld, P.E.
Project Manager	Stephen L. Whiteside, P.E.
Geotechnical Engineers	Charles R. Conlon Michael A. McCaffrey

2. SITE AND PROJECT DESCRIPTIONS

Townshend Lake Dam is located on the West River in Townshend, Vermont (see Fig. 1). It is a unit of the Connecticut River Basin flood control plan. The dam is located about 20 miles upstream of the confluence of the Connecticut and West Rivers at Brattleboro, Vermont.

The dam is a rockfill and earthfill embankment with an inclined impervious core, a concrete lined spillway and a low-level outlet. The embankment is 1700 ft long and has a maximum height of 133 ft. The dam crest elevation is 583 ft National Geodetic Vertical Datum (NGVD), and the crest width is 25 ft.

The project consists of the installation of a system of nine relief wells and collector pipe for seepage control along the downstream toe of Townshend Dam. The remedial measures were designed by the NED-CE. A plan of the relief well and collector pipe system is shown in Fig. 2. Cross sections and details of the relief wells are shown in Fig. 3. Seven relief wells, RW-1 through RW-7, are connected to two 18-in.-diameter collector pipes which empty into a discharge channel; two relief wells, RW-8 and RW-9, exit directly into the same discharge channel. The relief wells consist of an 8-in.-diameter stainless steel continuous slot wire wound well screen and riser pipe surrounded by gravel pack in a 23-in.-diameter hole. The depths of the relief wells range from 48 to 58 ft.

Relief Well Installation Reports are provided in Appendix A.

3. QUALITY ASSURANCE

3.1 General

Relief well installation, development and pump testing were performed by R. E. Chapman Company. The NED-CE designed the relief wells. Plans and cross sections of the relief wells are shown in Figs. 2 and 3. Carroll Excavating, Inc. of Williamstown, Vermont determined the location and ground surface elevations for the relief wells. Carroll Excavating, Inc. also completed backfilling the relief wells, installed the collector pipe, and connected the relief wells to the collector pipe.

3.2 Equipment, Materials and Procedures

3.2.1 Drilling Relief Wells

The following equipment and procedures were used to drill the holes for the relief wells:

a. Equipment

1. Drill Rig: Gardner Denver 15W rotary drill rig.

2. Drill Bits: A 23-in.-diameter roller bit followed by a 21-in.-diameter, 6.7-ft-long cylindrical guide to maintain a vertical hole was used. A 26-in.-diameter roller bit was used on some relief well holes to facilitate the installation of surface casing.

3. Casing and Rods: A 24-in.-diameter surface casing was used. Six-in.-diameter drill rods in 15-ft sections were used.

4. Drilling Fluid: Revert drilling fluid manufactured by Johnson UOP, Inc.

b. Procedures

All relief well holes were advanced by the conventional rotary drilling method using a 23-in.-diameter roller bit followed by a 21-in.-diameter guide. Revert drilling fluid was used to prevent uncased sections of relief well holes from collapsing and to flush cuttings to the surface. A portable mud tub was

used for relief wells RW-1, 2, 3, and 4 to recirculate the drilling fluid and allow cuttings to settle out of suspension. A slurry pit excavated in the ground was used for relief wells RW-5, 6, 7, 8, and 9.

Temporary surface casing, extending to depths ranging from 5 to 12 ft below the ground surface, was used in drilling all relief wells except RW-9. The casing was used to prevent the hole from collapsing above the gravel pack during development and as a reference for setting the relief wells to the design elevation during installation. The casing was also necessary for recirculation with the portable mud tub. A 26-in.-diameter hole was drilled to a depth of about 10 ft for relief wells RW-7 and 8 to facilitate the installation of a 12-ft section of casing.

Exploratory test pits were excavated near relief wells RW-6, 7, 8, and 9. The test pits near relief wells RW-7, 8, and 9 encountered several large boulders in the upper 8 ft. The anticipated difficulties of drilling and installing casing in the relief well holes through large boulders resulted in the relocation of relief wells RW-7, 8, and 9, 20 ft downstream of their design locations. The NED-CE approved the relocation of the relief wells.

Relief well holes were drilled to a depth about 3 ft below the bottom elevation of the well screen. Depth of relief well holes ranged from 49 to 58 ft.

General descriptions of the material encountered in the relief well holes are provided in Appendix A in the Relief Well Installation Reports. Samples were not taken during the drilling of the relief well holes. The field engineer based his material descriptions on the rate of drilling, roughness or smoothness of roller bit advance, cuttings in the drilling fluid, and logs of the test borings previously performed adjacent to the relief well locations.

3.2.2 Installation of Relief Wells

The following materials and procedures were used to install the relief wells:

a. Materials

1. Well Screen: Johnson 8-in.-inside diameter (I.D.) continuous slot stainless steel well screen with 0.150-in.-wide slot openings.
2. Riser Pipe and Tees: Eight-in.-diameter Schedule 40 galvanized steel pipe.
3. Gravel Pack: A narrowly graded fine gravel to coarse sand from Cape May, New Jersey. The results of a grain size analysis performed on the gravel pack are included in Table 1.
4. Welds: Stainless steel electrodes were used to connect the stainless steel well screen sections to adjacent sections.
5. Cold Galvanizing Paint: ZiRP (zinc rich protection) was used to cover all surfaces where galvanizing was burned off.
6. Chemicals: Olin HTH powder, a calcium hypochlorite solution, was used to reduce the viscosity of the drilling fluid.

b. Procedures

The relief wells are 8-in.-I.D. well screen and riser surrounded by a 7-1/2-in. thickness of gravel pack in a 23-in.-diameter hole. Cross sections of the relief wells are shown in Fig. 3. Relief wells depths range from 48 to 58 ft. The lower portion of the relief wells is a stainless steel continuous slot well screen with 0.150-in. openings. The lengths of the well screens range from 34.5 to 44.75 ft. Galvanized steel riser pipe extends from the top of the well screen to about 3.5 ft above the ground for relief wells RW-1 through RW-7 and to about 2.5 ft above the invert of the discharge channel for relief

wells RW-8 and 9. A galvanized steel tee section is included in the riser section to facilitate connection to the collector pipe or discharge directly to the discharge channel. The tee section is located at about 2 to 11.5 ft above the well screen.

Sections of well screen and riser pipe were connected by arc welding. The well screen and riser pipe sections, typically 20 ft long or shorter, were welded as they were lowered down the relief well hole. The lower section of pipe was supported either by chaining it to the drill rig or by a wooden clamp. The upper section of pipe was set on top of the lower section and aligned with respect to the lower section using a level to ensure the relief well was plumb. Stainless steel electrodes were used to connect the stainless steel well screen sections to adjacent screen and riser sections. ZiRP, a cold galvanizing paint, was used to cover all surfaces where galvanizing had been burned off the riser pipe.

"Spiders" were used to center the relief well in the hole. The spiders consisted of semi-circular metal strips welded to the screen, extending 6-1/2 in. out from the well screen. Three sets of spiders, spaced about 20 to 25 ft apart, were used for well screens 40 ft and longer. Well screens less than 40 ft long had two sets of spiders about 35 ft apart. A temporary cover was welded on the tee and removed after pump testing the relief well. Temporary ears were welded to the top of pipe sections to facilitate lifting.

After all sections of the relief well pipe had been connected, it was lowered to rest on the bottom of the hole. About 30 lbs of a calcium hypochlorite powder was added to the revert drilling fluid to reduce its viscosity. The drilling fluid was then recirculated through the relief well hole using open end drill rods lowered to about 10 ft from the bottom for about 1 hour. After the viscosity of the drilling fluid had been sufficiently reduced, the relief well pipe was lifted to the design elevation, using the surface casing as a reference, and the gravel pack was placed in the annular space below and around the relief

well by allowing the gravel pack to fall through the reduced viscosity drilling fluid to a depth slightly above the bottom of the surface casing.

Gravel pack was placed from the bottom of the relief well holes to 2 to 2.5 ft above the top of the well screen.

Backfilling relief wells above the gravel pack was performed after pump testing was completed. The NED-CE revised the design backfill requirements shown in Fig. 3 since the Contractor was unable to acquire impervious backfill during the winter months. The NED-CE decided to eliminate the impervious backfill, extend the concrete plug to a thickness of 5 ft, and backfill the remaining space between the gravel pack and concrete plug with concrete sand.

This procedure was used for relief wells RW-1 through RW-7, except RW-3. Relief well RW-3 has a 4.5-ft concrete plug resting directly on top of the gravel pack. Relief wells RW-8 and 9 are enclosed in precast concrete outlet structures extending 6 ft below the discharge channel invert and backfilled with concrete sand.

Details of the installation of each relief well are included in Appendix A.

3.2.3 Development of Relief Wells

The following equipment and procedures were used to develop the relief wells:

a. Equipment

1. Jetting Tool: A 12-in.-long, 7-in.-O.D. hollow steel cylinder with four 3/16-in.-diameter nozzles spaced at 90 degrees around the cylinder and one 3/8-in.-diameter nozzle in the bottom of the tool was used for jetting. The jetting tool was attached to the drill rods.

2. Bailer: A 10-ft-long, 6-1/2-in.-O.D. steel pipe with a hinged trap door on the bottom and steel piston connected to a cable free to travel the length of the pipe was used to remove material from the bottom of the relief wells. A semicircular opening in the side of the pipe near the top allows material to be removed by inverting the bailer.

b. Procedure

Development of all relief wells was accomplished by high-velocity water jetting. A jetting pressure of 200 psi was used for development of all relief wells. Prior to jetting, water was flushed through the relief wells and gravel pack for about 1 hour through open end drill rods. Jetting commenced at the bottom of the well screen and progressed upwards. Jetting was performed by continuously rotating the jetting tool while it was slowly lifted upwards. Rotating and lifting the jetting tool was repeated for about 90 minutes covering the entire length of the well screen. The above procedure was established as one cycle. At the end of each cycle, the material collected in the bottom of the relief well was measured and subsequently removed using the bailer. Subsequent cycles were repeated until 1 ft of material or less was brought into the well in one cycle.

The material brought into relief wells RW-1 through RW-7 during development was almost entirely the gravel pack surrounding the wells. In the later cycles of development, a mixture of fine sand and gravel pack was brought into relief well RW-8, and relief well RW-9 collected mostly fine sand. Development of relief well RW-9 was stopped at the discretion of the NED-CE before the criterion of 1 ft of material per cycle was met, because the amount of material being brought into the well, 2 to 2.5 ft, in consecutive cycles was not decreasing after 31.5 hours of development.

During development it was observed that some of the relief well pipe settled about 0.1 ft.

Development time included daily preparation for jetting after initial set up, removing

material from relief wells and actual jetting time. Development times varied from 14 to 31.5 hours.

Details of the development for each relief well are provided in Appendix B.

3.2.4 Pump Testing Relief Wells

The following equipment and procedures were used for pump testing the relief wells:

a. Equipment

1. Pump: A Pioneer Model No. KP230-2 submersible pump with a capacity of about 300 gal/min. A gasoline driven generator was used to supply power to the pump.

2. Flow Measuring Instruments: A piezometer tube with a 3-in.-diameter orifice and 4-in.-diameter pipe 7 ft long was used to measure the flow rate for some pump tests. A pitot tube was used for measuring the flow rate in some pump tests.

b. Procedure

All pumping tests were performed for 6 hours at a pumping rate of 200 gal/min or higher. Pumping tests were started at flow rates slightly less than 200 gal/min to allow the discharge to clear, but within 1 hour all tests were running at 200 gal/min or more. The intake of the submersible pump was set 2 to 11 ft above the bottom of the relief well.

Drawdown in the pumped well was measured at 1-hour intervals after the first hour and more frequently prior to that. Drawdown in adjacent wells was made at the middle and the end of the test. Water levels were measured using an electric water level indicator.

The flow rate was measured using a piezometer tube for relief wells RW-1, 6, 7, 8, and 9. The flow rate for relief wells RW-2, 3, 4, and 5 was measured using a pitot tube.

After all pump testing was completed, sand collected in the bottom of the relief wells

was removed by setting PVC pipe on the bottom of the well and removing the sand with a suction pump attached to the pipe.

3.3 Records

The GEI field geotechnical engineer kept records of field activities and procedures.

Appendix A contains installation reports for each relief well, including development and pumping test summaries.

Appendix B contains the data forms for development by high-velocity jetting for each relief well.

Appendix C contains pump testing reports for each relief well.

Appendix D contains the daily log of construction forms.

3.4 Quality Control

Our report has been subjected to our internal review and coordination procedures to evaluate the completeness of the submission, check for conflicts, errors and omissions, and evaluate the overall professional and technical accuracy of the submission.

TABLE 1 - GRAIN SIZE ANALYSIS OF
 GRAVEL PACK FOR RELIEF WELLS
 Townshend Lake
 Townshend, Vermont

U.S. Standard Sieve No.	Percent by Weight	
	Tested Gravel Pack(1)	Specifications Requirements(2)
1 in.	100	100
1/2-in.	100	80-100
No. 4	39.9	20-70
No. 6	3.2	0-55
No. 10	0.6	0-15

- NOTES: (1) Grain size analysis performed by Soils Engineering, Inc., Charlestown, New Hampshire
 (2) Specification No. DACW33-85-B-0029
 (3) Sample was taken by hand from two locations of the stockpile on site.



Reproduced from U.S. Geological Survey topographic map for the Saxtons River, Vermont, 15 minute quadrangle (1957).

Note: Townshend Dam was completed in 1961 and, therefore, is not shown on the 1957 topographical map. The indicated location of Townshend Dam is approximate.

U. S. Corps of Engineers Waltham, MA	Relief Wells Townshend Lake Townshend, Vermont	SITE LOCATION PLAN
Φ GEOTECHNICAL ENGINEERS INC. WINCHESTER • MASSACHUSETTS	Project 85751	March, 7, 1986 Fig. 1

APPENDIX A

RELIEF WELL INSTALLATION REPORTS

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	0 + 20	OFFSET FROM CENTERLINE: 200' FT D/S OF BASELINE	RELIEF WELL NO: RW-1
CONTRACT NO:	DALW 33-85- B-0029	CONTRACTOR: R.E. CHAPMAN CO.	OPERATOR: CHARLIE FROST
DRILLING CONVENTIONAL ROTARY DRILLING W/REVERT DRILLING FLUID METHOD: 9.5 FT SURFACE CASING AND MUD TUB			
DIAMETER OF HOLE: 23 IN		DATE: - Start: 11-12-85 Finish: 11-22-85	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION:- Type: SAME AS RISEC Height: 3.5 FT		PIPE	LOG OF HOLE
ELEV OF GROUND AT WELL: FINAL 475.1 INITIAL 474.58		FINAL	0
RISER:- Type: SCHEDULE 40 GALVANIZED STEEL Inside Diameter: 8 IN		CONC	SILTY FINE SAND.
ELEV TOP OF RISER: 478.6 NGVD		TEE	SAND
LENGTH OF RISER: 13.59 FT			GRAVEL PACK
TYPE OF BACKFILL: 5.0 FT CONCRETE 2.6 FT CONCRETE-SAND			10
ELEV OF TEE INVERT: 467.0			BOULDER
TYPE OF CHECK VALVE: CAST IRON HORIZONTAL LIFT FINE GRAVEL TO COARSE SAND			SAND OR SILTY SAND.
FILTER: FROM CAPE MAY, NJ			GRAVELY SAND OR SANDY GRAVEL
ELEV TOP OF FILTER: 467.0			SAND OR SILTY SAND.
WELL SCREEN:- Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 IN Perforations: 0.150 IN			-20
ELEV TOP OF WELL SCREEN: 465.0			SANDY GRAVEL OR GRAVELY SAND.
LENGTH OF WELL SCREEN: 44.75 FT			-30
"BLANK" PIPE LENGTH: 0			Dense. Frequent cobbles from 34-47 ft depth. Glacial Till?
INSIDE DEPTH OF WELL: 58.3 FT			
ELEV INSIDE BOTTOM OF WELL: 420.3			-40
DEPTH OF HOLE: 58.0 FT <small>FROM INITIAL GROUND</small>			-50
DEVELOPMENT DATA			
METHOD: JETTING			
TOTAL DEVELOPMENT TIME: 25.0 HRS		PUMPING DATA	
SAND IN WELL BEFORE DEVELOPMENT: 4.0 FT			
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: 1: 6.0'		RATE OF PUMPING: 216 GPM	
2: 4.0'	3: 3.3'	4: 2.3'	5: 1.5'
6: 1.3'	7: 0.8'	TOTAL!! 42.4 FT	TOTAL PUMPING TIME: 6.0 HRS
SETTLEMENT OF FILTER DURING DEVELOPMENT: 8.4 FT		DRAWDOWN: 18.8 FT	
NOTES: ⁽¹⁾ INCLUDES PRELIMINARY DEVELOPMENT		SPECIFIC CAPACITY: 11.5 GPM/FT	
SAND BROUGHT INTO WELL: 0.2 FT			

INSPECTOR CHARLES CONLON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	0+20	OFFSET FROM CENTERLINE: 150 FT DS OF BASELINE	RELIEF WELL NO: RW-2
CONTRACT NO:	DACW33-85-B-0029	CONTRACTOR: R.E. CHAPMAN CO.	OPERATOR: CHARLIE FROST
DRILLING CONVENTIONAL ROTARY DRILLING WI REVERT DRILLING FLUID METHOD: 9.5 FT SURFACE CASING AND MUD TUB			
DIAMETER OF HOLE: 23 IN		DATE: - Start: 11-25-85 Finish: 12-4-85	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION: - Type: SAME AS RISER Height: 3.5 FT			LOG OF HOLE
ELEV OF GROUND AT WELL: 472.72 NGVD			0 - SILTY FINE SAND.
RISER: - Type: SCHEDULE 40 GALVANIZED STEEL Inside Diameter: 8 IN		TEE	CONC
ELEV TOP OF RISER: 476.3			SAND
LENGTH OF RISER: 11.26 FT			GRAVEL PACK
TYPE OF BACKFILL: 5.0 FT CONCRETE 0.7 FT CONCRETE SAND			- 10 - BOULDER SAND OR SILTY SAND
ELEV OF TEE INVERT: 467.0			- 20 -
TYPE OF CHECK VALVE: CAST IRON HORIZONTAL LIFT FILTER: FINE GRAVEL AND COARSE SAND FROM CAPE MAY, NJ			GRAVELLY SAND or SANDY GRAVEL
ELEV TOP OF FILTER: 467.1			- 30 - SAND or SILTY SAND.
WELL SCREEN: - Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 IN Perforations: 0.150 IN			- 40 - SANDY GRAVEL or GRAVELLY SAND. Dense. Frequent Cobbles from 42-55 ft depth. Glacial Till?
ELEV TOP OF WELL SCREEN: 465.0			- 50 -
LENGTH OF WELL SCREEN: 44.75 FT			
"BLANK" PIPE LENGTH: 0			
INSIDE DEPTH OF WELL: 56.0 FT			
ELEV INSIDE BOTTOM OF WELL: 420.3			
DEPTH OF HOLE: 56.0 FT			
DEVELOPMENT DATA			
METHOD: JETTING			
TOTAL DEVELOPMENT TIME: 19.75 HRS			
SAND IN WELL BEFORE DEVELOPMENT: 4.0' FT		PUMPING DATA	
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: 1: 2.9'		RATE OF PUMPING: 200 GPM	
2: 1.6'	3: 1.1'	4: 5:	TOTAL PUMPING TIME: 6.0 HRS
6: 7:	TOTAL: (1) 23.9 FT		DRAWDOWN: 12.9 FT
SETTLEMENT OF FILTER DURING DEVELOPMENT: 6.2 FT		SPECIFIC CAPACITY: 15.5 GPM/FT	
NOTES: (1) INCLUDES PRELIMINARY DEVELOPMENT		SAND BROUGHT INTO WELL: 0.3 FT	

INSPECTOR

CHARLES CONLON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION		
LOCATION (STA):	0+20	OFFSET FROM CENTERLINE:	100 FT DIS OF BASELINE	RELIEF WELL NO: RW-3
CONTRACT NO:	DAGW33-BS- B-0027	CONTRACTOR:	R.E. CHAPMAN CO.	OPERATOR: CHARLIE FROST
DRILLING METHOD:	CONVENTIONAL ROTARY DRILLING 9.5 FT SURFACE CASING	W/REVERT	DRILLING FLUID 24 in ϕ	AND MUD TUB
DIAMETER OF HOLE: 23 in		DATE: - Start: 12-5-85 Finish: 12-12-85		
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH	LOG OF HOLE
WELL EXTENSION:- Type: SAME AS RISER Height: 3.5 FT				
ELEV OF GROUND AT WELL:	471.74 NGVD		0	SILTY FINE SAND ~15% GRAVEL IN UPPER 2FT
RISER:- Type:	SCHEDULE 40 GALVANIZED STEEL	TEE		
Inside Diameter:	8 in			
ELEV TOP OF RISER:	475.2		- 10 -	BOULDERS AND COBBLES. FILL.
LENGTH OF RISER:	10.24 FT			
TYPE OF BACKFILL:	4.5 FT CONCRETE			
ELEV OF TEE INVERT:	467.0		- 20 -	
TYPE OF CHECK VALVE:	HORIZONTAL LIFT CAST IRON			
FILTER:	FINE GRAVEL AND COARSE SAND FROM CAPE MAY, NJ			GRAVELY SAND. Occ'l Cobbles.
ELEV TOP OF FILTER:	467.0			
WELL SCREEN:- Type:	JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304		- 30 -	GRAVELY SAND or SANDY GRAVEL. Dense. Frequent Cobbles. Glacial Till?
Inside Diameter:	8 in			
Perforations:	0.150 in			
ELEV TOP OF WELL SCREEN:	465.0		- 40 -	
LENGTH OF WELL SCREEN:	44.75 FT			
"BLANK" PIPE LENGTH:	0			
INSIDE DEPTH OF WELL:	54.9 FT			
ELEV INSIDE BOTTOM OF WELL:	420.3			
DEPTH OF HOLE:	54.0 FT		- 50 -	
DEVELOPMENT DATA				
METHOD:	JETTING			
TOTAL DEVELOPMENT TIME:	16.0 HRS			
SAND IN WELL BEFORE DEVELOPMENT:	1.8 FT	PUMPING DATA		
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE:	1: 2.4'	RATE OF PUMPING:	200 GAL/MIN	
2: 2.4'	3: 2.6'	4: 1.9'	5: 1.2'	TOTAL PUMPING TIME: 6.0 HRS
6: 1.2'	7:	TOTAL: (1) 16.2 FT	DRAWDOWN: 23.8 FT	
SETTLEMENT OF FILTER DURING DEVELOPMENT:	6.3 FT	SPECIFIC CAPACITY:	6.9 GPM / FT	
NOTES: (1)	INCLUDES PRELIMINARY DEVELOPMENT	SAND BROUGHT INTO WELL:	0.3 FT	

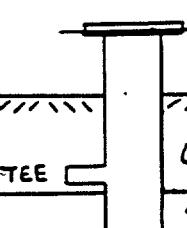
INSPECTOR CHARLES CONLON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION		
LOCATION (STA): O+20	OFFSET FROM CENTERLINE: 50 FT DIS OF BASELINE	RELIEF WELL NO: RW-4		
CONTRACT NO: DACW33-85-B-0029	CONTRACTOR: R.E. CHAPMAN CO.	OPERATOR: CHARLIE FROST		
DRILLING METHOD: CONVENTIONAL ROTARY DRILLING WITH REVERT DRILLING MUD				
DIAMETER OF HOLE: 23 IN	DATE: - Start: 12-13-85 Finish: 12-27-85			
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH	LOG OF HOLE
WELL EXTENSION: - Type: SAME AS RISER Height: 3.5 FT				
ELEV OF GROUND AT WELL: 471.24 NGVD			0	GRAVELLY SILTY FINE SAND.
RISER: - Type: SCHEDULE 40 GALVANIZED STEEL Inside Diameter: 8 IN	TEE	LONG SAND GRAVEL PACK	- 10	COBBLES. FILL. ----- GRAVELLY SAND OR SANDY GRAVEL. Occ'l Cobble.
ELEV TOP OF RISER: 474.7			- 20	
LENGTH OF RISER: 11.74 FT			- 30	
TYPE OF BACKFILL: 5.0 FT CONCRETE 0.9 FT CONCRETE SAND			- 40	SAND OR SILTY SAND.
ELEV OF TEE INVERT: 467.0			- 50	GRAVELLY SAND OR SANDY GRAVEL. Dense. Occ'l Cobble. Glacial Till?
TYPE OF CHECK VALVE: CAST IRON HORIZONTAL LIFT FILTER: FINE GRAVEL AND COARSE SAND FROM CAPE MAY, NJ				
ELEV TOP OF FILTER: 465.3				
WELL SCREEN: - Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 IN Perforations: 0.150 IN				
ELEV TOP OF WELL SCREEN: 463.0				
LENGTH OF WELL SCREEN: 42.75 FT				
"BLANK" PIPE LENGTH: 0				
INSIDE DEPTH OF WELL: 54.4 FT				
ELEV INSIDE BOTTOM OF WELL: 420.3				
DEPTH OF HOLE: 54.0				
DEVELOPMENT DATA				
METHOD: JETTING				
TOTAL DEVELOPMENT TIME: 16.75 HRS		PUMPING DATA		
SAND IN WELL BEFORE DEVELOPMENT: 0.5 FT		RATE OF PUMPING: 204 GAL/MIN		
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: 1: 2.3' 2: 1.7' 3: 2.0' 4: 1.9' 5: 1.5'		TOTAL PUMPING TIME: 6.0 HRS		
6: 1.1' 7: 0.6 TOTAL: ⁽¹⁾ 15.5 FT		DRAWDOWN: 17.5 FT		
SETTLEMENT OF FILTER DURING DEVELOPMENT: 5.5 FT		SPECIFIC CAPACITY: 11.7 GPM/FT		
NOTES: ⁽¹⁾ INCLUDES PRELIMINARY DEVELOPMENT		SAND BROUGHT INTO WELL: 0.8 FT		

INSPECTOR CHARLES CONLON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION		
LOCATION (STA):	0 + 40	OFFSET FROM CENTERLINE: 1/4 OF BASELINE	RELIEF WELL NO:	RW-5
CONTRACT NO:	DACW 33-85-B-0029	CONTRACTOR: R.E. CHAPMAN CO.	OPERATOR:	CHARLIE FROST
DRILLING CONVENTIONAL ROTARY DRILLING W/ REVERT DRILLING FLUID METHOD: 6.0'-24' Dia CASING AND SLURRY PIT				
DIAMETER OF HOLE: 23 IN		DATE: - Start: 12-27-85 Finish: 1-7-86		
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH	LOG OF HOLE
WELL EXTENSION:- Type: SAME AS RISER Height: 3.5 FT				
ELEV OF GROUND AT WELL: 470.80 NGVD			0	SILTY SAND. with Gravel and Cobbles.
RISER:- Type: SCHEDULE 40 Galvanized Steel Inside Diameter: 8 in.		TEE		
ELEV TOP OF RISER: 474.3				GRAVELY SAND OR SANDY GRAVEL. with Cobbles and Boulders.
LENGTH OF RISER: 13.30 FT			-10	
TYPE OF BACKFILL: 5.0 FT CONCRETE 2.3 FT CONCRETE SAND				
ELEV OF TEE INVERT: 466.5			-20	
TYPE OF CHECK VALVE: CAST IRON HORIZONTAL LIFT FINE GRAVEL TO COARSE SAND FILTER: FROM CAPE MAY, NJ				GRAVELY SAND OR SANDY GRAVEL. Dense. Zones of Cobbles. Glacial Till?
ELEV TOP OF FILTER: 463.5			-30	
WELL SCREEN:- Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 in. Perforations: 0.150 in				
ELEV TOP OF WELL SCREEN: 461.0			-40	
LENGTH OF WELL SCREEN: 40.5 FT				
"BLANK" PIPE LENGTH: 0				
INSIDE DEPTH OF WELL: 53.7 FT				
ELEV INSIDE BOTTOM OF WELL: 420.6			-50	
DEPTH OF HOLE: 54.0 FT				
DEVELOPMENT DATA				
METHOD: JETTING				
TOTAL DEVELOPMENT TIME: 16.0 HRS				
SAND IN WELL BEFORE DEVELOPMENT: 1.4 FT		PUMPING DATA		
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: 1: 2.5' 2: 1.9' 3: 1.6' 4: 1.2' 5: 1.0'		RATE OF PUMPING: 210 GAL/MIN		
6: 7: TOTAL: ⁽¹⁾ 13.5 FT		TOTAL PUMPING TIME: 6.0 HRS		
SETTLEMENT OF FILTER DURING DEVELOPMENT: 5.5 FT		DRAWDOWN: 27.5 FT		
NOTES: ⁽¹⁾ INCLUDES PRELIMINARY DEVELOPMENT		SPECIFIC CAPACITY: 7.6 GPM/FT		
		SAND BROUGHT INTO WELL: 0.3 FT		

INSPECTOR Michael A. McLaughrey / CHARLES R. CONDON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	1+00	OFFSET FROM CENTERLINE:	4' OF BASELINE
CONTRACT NO:	DALW 33-85- B-0029	CONTRACTOR:	R.E. CHAPMAN CO.
METHOD:	CONVENTIONAL ROTARY DRILLING W/ REVERT DRILLING FLUID 74" DIA CASING - 6 FT LONG AND SLURRY PIT	OPERATOR:	CHARLIE FROST
DIAMETER OF HOLE: 23 IN.		DATE: - Start: 1-7-85 Finish: 1-14-85	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION: - Type: SAME AS RISER Height: 3.5 FT			LOG OF HOLE
ELEV OF GROUND AT WELL:	468.36 NGVD	TEE	0
RISER: - Type:	SCHEDULE 40 GALVANIZED STEEL	CONC	GRAVELLY SILTY FINE SAND.
	Inside Diameter: 8 IN	SAND	
ELEV TOP OF RISER:	471.9	GRATEL PACK	10
LENGTH OF RISER:	15.86 FT	-	COBBLES
TYPE OF BACKFILL:	50 FT CONCRETE 4.9 FT CONCRETE SAND	-	GRAVELLY SAND OR SANDY GRAVEL.
ELEV OF TEE INVERT:	466.5	-	20
TYPE OF CHECK VALVE:	CAST IRON HORIZONTAL LIFT	-	
FILTER:	FINE GRAVEL TO COARSE SAND FROM CAPE MAY, NJ	-	
ELEV TOP OF FILTER:	458.5	-	
WELL SCREEN: - Type:	JOHNSON CONTINUOUS SLOT STAINLESS STEEL	-	30
	Inside Diameter: 8 IN.	-	
	Perforations: 0.150 IN.	-	
ELEV TOP OF WELL SCREEN:	456.0	-	
LENGTH OF WELL SCREEN:	35.5 FT	-	
"BLANK" PIPE LENGTH:	0	-	
INSIDE DEPTH OF WELL:	51.3 FT	-	
ELEV INSIDE BOTTOM OF WELL:	420.6'	-	
DEPTH OF HOLE:	52.0 FT	-	40
DEVELOPMENT DATA			
METHOD:	JETTING		
TOTAL DEVELOPMENT TIME:	14.0 HRS	PUMPING DATA	
SAND IN WELL BEFORE DEVELOPMENT:	0.1 FT	RATE OF PUMPING: 219 GAL/MIN	
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE:	1: 2.0' 2: 1.6 3: 1.5 4: 1.5 5: 1.0' 6: 7: TOTAL: (1) 8.4 FT	TOTAL PUMPING TIME: 6.0 HRS	
SETTLEMENT OF FILTER DURING DEVELOPMENT:	4.6 FT	DRAWDOWN: 12.4 FT	
NOTES: (1)	INCLUDES PRELIMINARY DEVELOPMENT	SPECIFIC CAPACITY: 17.7 GPM/FT	
		SAND BROUGHT INTO WELL: 0.2 FT	

INSPECTOR CHARLES CONLON

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	1 + 50	OFFSET FROM CENTERLINE:	20 FT DIS OF BASELINE
CONTRACT NO:	DACW33-BS-3-0029	CONTRACTOR:	R.E. CHAPMAN CO.
DRILLING CONVENTIONAL ROTARY DRILLING WITH REVERT DRILLING FLUID METHOD: AND SLURRY PIT - 12 FT SURFACE CASING			
DIAMETER OF HOLE: 23 IN		DATE: - Start: 2-5-86 Finish: 2-11-86	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION: - Type: SAME AS RISER Height: 3.5 FT			LOG OF HOLE
ELEV OF GROUND AT WELL: FINAL 468.5			
RISER: - Type: SCHEDULE 40 GALVANIZED STEEL Inside Diameter: 8 IN			
ELEV TOP OF RISER:	472.0 NGVD	TEE	0
LENGTH OF RISER:	17.0 FT	CONC	
TYPE OF BACKFILL: 5.0 FT CONCRETE 6.5 FT CONCRETE SAND		SAND	
ELEV OF TEE INVERT:	466.5	GRATEL PACK	
TYPE OF CHECK VALVE: CAST IRON HORIZONTAL LIFT			
FILTER: FINE GRAVEL TO COARSE SAND FROM CAPE MAY, N.J.			
ELEV TOP OF FILTER:	457.0		
WELL SCREEN: - Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 IN. Perforations: 0.150 IN.			
ELEV TOP OF WELL SCREEN:	455.0		
LENGTH OF WELL SCREEN:	34.5 FT		
"BLANK" PIPE LENGTH:	0		
INSIDE DEPTH OF WELL:	51.4 FT		
ELEV INSIDE BOTTOM OF WELL:	420.6		
DEPTH OF HOLE:	49.0 FT ^{FROM INITIAL GROUND}		
DEVELOPMENT DATA			
METHOD: JETTING		PUMPING DATA	
TOTAL DEVELOPMENT TIME: 20.5 HRS			
SAND IN WELL BEFORE DEVELOPMENT: 2.5 FT		RATE OF PUMPING: 214 GAL/MIN	
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: ⁽¹⁾ 1: 2.4		TOTAL PUMPING TIME: 6.0 HRS	
2: 1.5	3: 1.8	4: 1.5	5: 1.3
6: 1.2	7: 0.7	TOTAL: ⁽²⁾ 22.5 FT	DRAWDOWN: 10.4 FT
SETTLEMENT OF FILTER DURING DEVELOPMENT: 6.6 FT		SPECIFIC CAPACITY: 20.6 GPM/FT	
NOTES: ⁽¹⁾ LAST 7 CYCLES		SAND BROUGHT INTO WELL: 0.1 FT	
(2) INCLUDES ALL CYCLES			
INSPECTOR		CHARLES CONLON	

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	Z + 00	OFFSET FROM CENTERLINE: 20 FT DIS OF BASELINE	RELIEF WELL NO: RW-8
CONTRACT NO:	DALW 33-85- B-0029	CONTRACTOR: R.E.CHAPMAN CO.	OPERATOR: CHARLIE FROST
DRILLING CONVENTIONAL ROTARY DRILLING WITH REVERT DRILLING FLUID		METHOD: AND SLURRY PIT - 12 FT SURFACE CASING	
DIAMETER OF HOLE: 23 IN / 26 IN TOP 10 FT		DATE: - Start: 1-28-86 Finish: 2-4-86	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION:- Type: SAME AS RISER Height: 2.5 FT		PRECAST CONCRETE OUTLET STRUCTURE	
ELEV OF GROUND AT WELL: INITIAL 466.9 FINAL 465.0		FINAL	0
RISER:- Type: SCHEDULE 40 GALVANIZED STEEL Inside Diameter: 8 IN.		SAND	10
ELEV TOP OF RISER: 467.5 NGVD		GRAVEL PACK	Cravelly sand or sandy gravel.
LENGTH OF RISER: 12.5 FT		-	-
TYPE OF BACKFILL: PRECAST CONCRETE OUTLET STRUCTURE EXTENDS 6 FT BELOW FINAL GROUND, 2.0 FT CONCRETE SAND		-	-
ELEV OF TEE INVERT: 465.5		-	-20-
TYPE OF CHECK VALVE: CAST IRON FLAP VALVE		-	-
FILTER: FINE GRAVEL TO COARSE SAND FROM CAPE MAY, N.J.		-	-
ELEV TOP OF FILTER: 457.0		-	-
WELL SCREEN: - Type: JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304 Inside Diameter: 8 IN. Perforations: 0.150 IN		-	-30-
ELEV TOP OF WELL SCREEN: 455.0		-	Gravelly sand or sandy gravel.
LENGTH OF WELL SCREEN: 34.5 FT		-	Dense. Occl Zones of cobbles.
"BLANK" PIPE LENGTH: 0		-	Glacial Till?
INSIDE DEPTH OF WELL: 46.9 FT		-	-
ELEV INSIDE BOTTOM OF WELL: 420.6		-	-
DEPTH OF HOLE: 48.0 FT FROM INITIAL GROUND		-	-
DEVELOPMENT DATA			
METHOD: JETTING			
TOTAL DEVELOPMENT TIME: 20.0 HRS			
SAND IN WELL BEFORE DEVELOPMENT: 3.0 FT		PUMPING DATA	
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: ⁽¹⁾ 1: 2.5'		RATE OF PUMPING: 250. GAL/MIN	
2: 2.2'	3: 1.4'	4: 1.5'	TOTAL PUMPING TIME: 6.0 HRS
5: 1.5'			DRAWDOWN: 13.3 FT
6: 1.4'	7: 0.9'	TOTAL: ⁽²⁾ 18.7 FT	SPECIFIC CAPACITY: 18.8 GPM/FT
SETTLEMENT OF FILTER DURING DEVELOPMENT: 4.5 FT		SAND BROUGHT INTO WELL: 0.3 FT	
NOTES:(1) LAST 7 CYCLES			
(2) INCLUDES ALL CYCLES			
INSPECTOR		CHARLES CONLON	

RELIEF WELL INSTALLATION REPORT

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION	
LOCATION (STA):	Z+50	OFFSET FROM 20 FT DIS CENTERLINE: OF BASELINE	RELIEF WELL NO: RW-9
CONTRACT NO:	DACW33-95-B-0029	CONTRACTOR: R.E. CHAPMAN CO	OPERATOR: CHARLIE FROST
DRILLING METHOD:	CONVENTIONAL AND SLURRY	ROTARY DRILLING WITH REVERT DRILLING FLUID PIT - NO SURFACE CASING	
DIAMETER OF HOLE:	23 in / 26 in TOP 10 ft	DATE: - Start: 1-16-85 Finish: 1-27-86	
FINAL WELL INSTALLATION DATA		PIPE INSTALLED	DEPTH
WELL EXTENSION: - Type:	SAME AS RISER	PRECAST CONCRETE OUTLET STRUCTURE	LOG OF HOLE
Height:	2.5 FT		
ELEV OF GROUND AT WELL: FINAL	466.5	INITIAL	0 INITIAL GROUND
RISER: - Type:	SCHEDULE 40 GALVANIZED STEEL	FINAL	Bouldery silty sand. Frequent boulders and cobbles. Fill.
Inside Diameter:	8 in	0	
ELEV TOP OF RISER:	467.5 NGVD	10 SAND	
LENGTH OF RISER:	12.5 FT	GRAVEL PACK	
TYPE OF BACKFILL:	PRECAST CONCRETE OUTLET STRUCTURE EXTENDS 6 FT BELOW FINAL GROUND, 2.0 FT CONCRETE SAND	-	GRAVELY SAND OR SANDY GRAVEL.
ELEV OF TEE INVERT:	465.5	-	
TYPE OF CHECK VALVE:	NONE	-	
FILTER:	FINE GRAVEL TO COARSE SAND FROM CAPE MAY, NJ	-	
ELEV TOP OF FILTER:	457.5	-	
WELL SCREEN: - Type:	JOHNSON CONTINUOUS SLOT STAINLESS STEEL 304	-	GRAVELY SAND OR SANDY GRAVEL.
Inside Diameter:	8 in.	-	Dense. Occ'l Zones of cobble.
Perforations:	0.150 in.	-	Glacial Till?
ELEV TOP OF WELL SCREEN:	455.0	-	
LENGTH OF WELL SCREEN:	34.5 FT	-	
"BLANK" PIPE LENGTH:	0	-	
INSIDE DEPTH OF WELL:	46.9 ft	-	
ELEV INSIDE BOTTOM OF WELL:	420.6	-	
DEPTH OF HOLE:	48.0 FT FROM INITIAL GROUND	-	
DEVELOPMENT DATA			
METHOD:	JETTING		
TOTAL DEVELOPMENT TIME:	31.5 hrs	PUMPING DATA	
SAND IN WELL BEFORE DEVELOPMENT:	1.0 FT		
SAND BROUGHT INTO WELL DURING DEVELOPMENT CYCLE: (1)	1: 2.4' 2: 1.6' 3: 1.6' 4: 2.5' 5: 2.2'	RATE OF PUMPING:	219 GAL/MIN
6: 2.5 7: 2.4 TOTAL: (2) 37.0 FT		TOTAL PUMPING TIME:	6.0 HRS
SETTLEMENT OF FILTER DURING DEVELOPMENT:	8.5 FT	DRAWDOWN:	18.2 FT
NOTES: (1) LAST 7 CYCLES		SPECIFIC CAPACITY:	12.0 GPM/FT
(2) INCLUDES ALL CYCLES		SAND BROUGHT INTO WELL:	0.2 FT
INSPECTOR		CHARLES CONLON	

APPENDIX B

RELIEF WELL JETTING DATA REPORTS

JETTING DATA

PROJECT: TOWNSHEND LAKE, VERMONT				DISTRICT: NEW ENGLAND DIVISION													
LOCATION (STA): O+20				OFFSET FROM CENTERLINE: 200 FT DIS OF BASELINE				RELIEF WELL NO: RW-1									
DATE:- Start: 11-19-85 Finish: 11-22-85						TOTAL DEVELOPMENT TIME: ⁽¹⁾ 25.0 HRS											
No OF NOZZLES: 4 @ 90° , 1 - Bottom						NOZZLE SIZE: 4 = 3/16" , 1 = 3/8"											
INSIDE DEPTH OF WELL: 57.0 FT						LENGTH OF WELL SCREEN: 44.75 FT											
DEPTH TO FILTER: 9.9 " FROM TOP OF CASING						METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER											
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLE- MENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND IN WELL AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)						
11-19	0915- 1015	1.0	FLUSH THRU WELL AND FILTER	CLEAR WATER	—	9.9	0	53.0	4.0	0	4.0						
11-19	1100- 1200	1.0	TOP 15'	—	100	—	—	54.5	2.5	0.2	2.5						
11-19	1300- 1325/ 1430- 1500	0.75	M.D 15'	—	200	11.0	1.1	53.5	3.5	0	3.3						
11-20	0910- 1005	0.9	M.D 15'	—	200	12.0 11.2	1.0	52.0	5.0	0.7	5.0						
11-20	1030- 1120	0.8	BOT 15'	—	200	12.2 10.7	1.0	50.5	6.5	0	5.8						
11-20	1320- 1345	0.4	BOT 15'	—	200	—	—	55.1	1.9	0	1.9						
11-20	1410- 1530	1.3	44.75	1	200	12.5 10.6	1.8	51.0	6.0	0	6.0						
11-21	0730- 0915	1.75	44.75	2	200	11.3	0.7	53.0	4.0	0	4.0						
11-21	1015- 1130	1.25	44.75	3	200	12.3 10.4	1.0	53.7	3.3	0.3	3.3						
11-21	1245- 1415	1.5	44.75	4	200	11.0 9.3	0.6	54.4	2.6	0.1	2.3						
11-21	1430- 1550	1.3	44.75	5	200	9.9	0.6	55.4	1.6	0	1.5						
11-22	0745- 0920	1.6	44.75	6	200	10.4	0.5	55.7	1.3	0	1.3						
11-22	1005- 1125	1.5	44.75	7	200	10.5 9.9	0.1	56.2	0.8	0	0.8						
TOTAL SAND BROUGHT INTO WELL: 41.7'						TOTAL SETTLEMENT OF FILTER: 8.4'											
NOTES: (1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.																	
ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND																	
INSPECTOR						<u>CHARLES CONLON</u>											

JETTING DATA

INSPECTOR CHARLES CONLON

JETTING DATA

PROJECT: TOWNSHEAD LAKE, VERMONT

DISTRICT: NEW ENGLAND DIVISION

LOCATION
(STA) : 0+20

OFFSET FROM 100 FT DIS
CENTER LINE: OF BASELINE

00 FT DIS
F BASELINE

RELIEF
WELL NO: RW-3

DATE:- Start: 12-11-85 Finish: 12-12-85

TOTAL DEVELOPMENT TIME: ⁽¹⁾ 16.0 HRS.

NO OF NOZZLES: 4 @ 90°, 1 - BOTTOM

NOZZLE SIZE: 4 = $\frac{3}{16}$ ", 1 = $\frac{3}{8}$ "

INSIDE DEPTH OF WELL: 54.0 FT

LENGTH OF WELL SCREEN: 44.75 FT

DEPTH TO FILTER: 3.1 FT FROM TOP OF CASING

METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER

TOTAL SAND
BROUGHT INTO WELL: 16.2'

TOTAL SETTLEMENT
OF FILTER: 6.3'

NOTES: (1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.

ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND.

INSPECTOR CHARLES CONLON

JETTING DATA

PROJECT: TOWNSHEAD LAKE, VERMONT LOCATION (STA): 0+20				DISTRICT: NEW ENGLAND DIVISION OFFSET FROM CENTERLINE: 50 FT. DIS OF BASELINE RELIEF WELL NO: RW-4													
DATE:- Start: 12-23-85 Finish:				TOTAL DEVELOPMENT TIME: (1) 16.75 HRS													
NO OF NOZZLES: 4 @ 90°, 1 - Bottom				NOZZLE SIZE: 4 = $3\frac{1}{16}$ ", 1 = $3\frac{1}{8}$ "													
INSIDE DEPTH OF WELL: 54.4 FT				LENGTH OF WELL SCREEN: 42.75 FT													
DEPTH TO FILTER: 1.2 FT				METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER													
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLEMENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND BROUGHT AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)						
12-23	1030-1100/ 1130-1150	0.8	FLUSH THRU WELL AND FILTER	CLEAR WATER	—	1.1	0	53.9	0.5	0.5	0.5						
12-23	1155-1225	0.5	TOP 15'	—	200	1.9	0.8	52.4	2.0	0	1.5						
12-23	1230-1305	0.6	MID 15'	—	200	2.4	0.5	52.0	2.4	0.1	2.4						
12-23	1315-1500	1.75	42.75	1	200	3.8	1.4	52.0	2.4	0.2	2.3						
12-23	1500-1630	1.5	42.75	2	200	4.6	0.8	52.5	1.9	0	1.7						
12-24	0735-0910	1.6	42.75	3	200	5.3	0.7	52.4	2.0	0	2.0						
12-26	0850-1045	1.9	42.75	4	200	5.5	0.2	52.5	1.9	0.2	1.9						
12-26	1050-1245	1.9	42.75	5	200	5.8	0.3	52.7	1.7	0.1	1.5						
12-26	1245-1445	2.0	42.75	6	200	6.3	0.5	53.2	1.2	0.1	1.1						
12-26	1445-1625	1.7	42.75	7	200	6.8	0.5	53.7	0.7	0.1	0.6						
TOTAL SAND BROUGHT INTO WELL: 15.5 FT						TOTAL SETTLEMENT OF FILTER: 5.5 FT											
NOTES: (1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP, AND ACTUAL JETTING TIME.																	
ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND																	

INSPECTOR CHARLES R. CONLON /
Michael A. McCaffrey

JETTING DATA

PROJECT: TOWNSHEND LAKE, VERMONT

DISTRICT: NEW ENGLAND DIVISION

DATE:- Start: 1-3-86 Finish: 1-7-86

TOTAL DEVELOPMENT TIME: ⁽¹⁾ 16.0 HRS

NO OF NOZZLES: 4 @ 90°, 1 - Bottom

NOZZLE SIZE: 4 = $3/16$ " , 1 = $3/8$ "

INSIDE DEPTH OF WELL: 52.6 FT

LENGTH OF WELL SCREEN: 40.5 FT

DEPTH TO FILTER: 3.6 FT FROM TOP OF CASING

METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER

TOTAL SAND
BROUGHT INTO WELL: 13.5 FT

TOTAL SETTLEMENT
OF FILTER: 5.5 FT

NOTES: (1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP, AND ACTUAL JETTING TIME.

ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND

INSPECTOR CHARLES R. CONLON

JETTING DATA

PROJECT: TOWNSHEND LAKE, VERMONT			DISTRICT: NEW ENGLAND DIVISION														
LOCATION (STA):	1+00	OFFSET FROM CENTERLINE: C OF BASELINE	RELIEF WELL NO: RW-6														
DATE:- Start:	1-13-86	Finish:	1-14-86	TOTAL DEVELOPMENT TIME: ⁽¹⁾ 14.0 HRS													
NO OF NOZZLES:	4 @ 90°	, 1 - Bottom	NOZZLE SIZE: 4 = 3/16" 1 = 3/8"														
INSIDE DEPTH OF WELL: 51.3 FT			LENGTH OF WELL SCREEN: 35.5 FT														
DEPTH TO FILTER:	2.5 FT	FROM TOP OF CASING	METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER														
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLE- MENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND IN WELL AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)						
1-13	0745- 0900	1.25	FLUSH CLEAR WATER THRU WELL AND FILTER		200	2.5	0	51.2	0.1	0.1	0.1						
1-13	0910- 0950	0.7	TOP 15'	—	200	4.0	1.5	50.5	0.8	0.2	0.7						
1-13	1000- 1125	1.4	35.5	1	200	5.3	1.3	49.1	2.2	0.1	2.0						
1-13	1130- 1310	1.7	35.5	2	200	5.8 4.0	0.5	49.6	1.7	0.2	1.6						
1-13	1315- 1455	1.7	35.5	3	200	4.8	0.8	49.6	1.7	0.1	1.5						
1-13 / 1-14	1500- 1600 / 0830- 0915	1.75	35.5	4	200	5.0	0.2	49.7	1.6	0.2	1.5						
1-14	0930- 1115	1.75	35.5	5	200	5.3	0.3	50.1	1.2	0	1.0						
TOTAL SAND BROUGHT INTO WELL: 8.4 FT						TOTAL SETTLEMENT OF FILTER: 4.6 FT											
NOTES:(1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.																	
ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND																	

INSPECTOR CHARLES CONLON

JETTING DATA

PROJECT: TOWNSHEAD LAKE, VERMONT				DISTRICT: NEW ENGLAND DIVISION													
LOCATION (STA):	1 + 50	OFFSET FROM CENTERLINE: 20 FT DIS OF BASELINE				RELIEF WELL NO:		RW-7									
DATE:- Start: 2-7-86 Finish: 2-11-86				TOTAL DEVELOPMENT TIME: ⁽¹⁾ 20.5 HRS													
NO. OF NOZZLES: 4 @ 90°, 1 - BOTTOM										NOZZLE SIZE: 4 • 3/16", 1 = 3/8"							
INSIDE DEPTH OF WELL: 47.9 FT				LENGTH OF WELL SCREEN: 34.5 FT													
DEPTH TO FILTER: 4.0 FT FROM TOP OF CASING				METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER													
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLE- MENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND IN WELL AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)						
2-7	0730-0845	1.25	FLUSHED CLEAR THRU WELL AND FILTER	WATER	—	5.0	1.0	45.4	2.5	0.3	2.5						
2-7	0850-0925	0.6	TOP 15'	—	200	6.1	1.1	45.6	2.3	0.9	2.0						
2-7	0930-1005	0.6	MID 15'	—	200	6.5	0.4	44.5	3.4	0.1	2.5						
2-7	1010-1150	1.7	34.5	1	200	8.0	1.5	45.0	2.9	0.6	2.8						
2-7/ 2-10	1200-1300/ 0810-0845	1.6	34.5	2	200	8.7	0.7	45.0	2.9	0.5	2.3						
2-10	0850-1030	1.7	34.5	3	200	9.0	0.3	45.0	2.9	0.4	2.4						
2-10	1035-1205	1.5	34.5	4	200	9.3	0.3	46.0	1.9	0.6	1.5						
2-10	1210-1345	1.6	34.5	5	200	9.8	0.5	45.5	2.4	0.1	1.8						
2-10	1350-1530	1.7	34.5	6	200	10.0	0.2	46.3	1.6	0.4	1.5						
2-10/ 2-11	1535-1635/ 0745-0825	1.7	34.5	7	200	—	—	46.2	1.7	0.4	1.3						
2-11	0830-1010	1.7	34.5	8	200	10.5	0.5	46.3	1.6	0.2	1.2						
2-11	1015-1155	1.7	34.5	9	200	10.6	0.1	47.0	0.9	0.2	0.7						
TOTAL SAND BROUGHT INTO WELL: 22.5 FT						TOTAL SETTLEMENT OF FILTER: 6.6 FT											
NOTES: ⁽¹⁾ DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.																	
ALMOST ALL MATERIAL REMOVED FROM WELL WAS GRAVEL PACK, TRACE FINE SAND																	

INSPECTOR CHARLES CONLON

JETTING DATA

PROJECT: TOWNSHEND LAKE, VERMONT				DISTRICT: NEW ENGLAND DIVISION															
LOCATION (STA):	2 + 00	OFFSET FROM CENTERLINE: 20 FT DIS OF BASELINE				RELIEF WELL NO:		RW-8											
DATE: - Start: 1-31-86 Finish: 2-4-86				TOTAL DEVELOPMENT TIME: ⁽¹⁾ 20.0 HRS															
NO OF NOZZLES: 4 @ 90° , 1 - BOTTOM				NOZZLE SIZE: 4 = 3/16" , 1 = 3/8"															
INSIDE DEPTH OF WELL: 46.9 FT				LENGTH OF WELL SCREEN: 34.5 FT															
DEPTH TO FILTER: 5.0 FT FROM TOP OF CASING				METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER															
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLE- MENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND IN WELL AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)								
1-31	0730- 0845	1.25	FLUSHED CLEAR THRU WELL AND FILTER	WATER FILTER	5.0	0	43.9	3.0	0.5	3.0									
1-31	0850- 0925	0.6	TOP 15'	—	200	—	—	45.9	1.0	0.5	0.5								
1-31	0930- 1005	0.6	MID 15'	—	200	5.7	0.7	45.4	1.5	0.4	1.0								
1-31	1015- 1150	1.6	34.5	1	200	7.3	1.6	43.7	3.2	0.2	2.8								
1-31 / 2-3	1155- 1300 / 0810- 0955	1.8	34.5	2	200	7.9	0.6	44.2	2.7	0.5	2.5								
2-3	0900- 1035	1.6	34.5	3	200	8.3	0.4	44.2	2.7	0.1	2.2								
2-3	1040- 1215	1.6	34.5	4	200	8.4	0.1	45.4	1.5	0.2	1.4								
2-3	1220- 1400	1.7	34.5	5	200	8.8	0.4	45.2	1.7	0.5	1.5								
2-3	1400- 1545	1.75	34.5	6	200	9.1	0.3	44.9	2.0	0.1	1.5								
2-3 / 2-4	1550- 1620 / 0805- 0920	1.75	34.5	7	200	—	—	45.4	1.5	0.1	1.4								
2-4	0930- 1110	1.7	34.5	8	200	9.5	0.4	45.9	1.0	0	0.9								
TOTAL SAND BROUGHT INTO WELL: 18.7 FT				TOTAL SETTLEMENT OF FILTER: 4.5 FT															
NOTES: (1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.																			
MATERIAL REMOVED FROM THE WELL WAS A MIXTURE OF FINE SAND & GRAVEL PACK.																			

INSPECTOR CHARLES CONLON

JETTING DATA

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT			DISTRICT: NEW ENGLAND DIVISION															
LOCATION (STA):	2+50	OFFSET FROM CENTERLINE:	20 FT DIS OF BASELINE	RELIEF WELL NO:	RW-9													
DATE:- Start: 1-22-86 Finish: 1-27-86			TOTAL DEVELOPMENT TIME: ⁽¹⁾ 31.5 HRS															
NO OF NOZZLES: 4 @ 90°, 1-BOTTOM			NOZZLE SIZE: 4 = 3/16", 1 = 3/8"															
INSIDE DEPTH OF WELL: 46.9			LENGTH OF WELL SCREEN: 34.5 FT															
DEPTH TO FILTER: 1.0 FT			FROM TOP OF WELL			METHOD FOR REMOVING SAND FROM INSIDE WELL: BAILER												
DATE	TIME	ELAPSED TIME (HR)	LENGTH OF SCREEN COVERED (FT)	CYCLE	NOZZLE PRESSURE (PSI)	DEPTH TO FILTER (FT)	SETTLE- MENT OF FILTER (FT)	DEPTH TO SAND (FT)	SAND IN WELL (FT)	SAND BROUGHT AFTER CLEANING (FT)	SAND BROUGHT INTO WELL (FT)							
1-22	0730- 0845	1.25	FLUSHED CLEAR THRU WELL AND FILTER	WATER		1.5	0.5	45.9	1.0	0	1.0							
1-22	0900- 0940	0.7	TOP 15'	-	200	2.0	0.5	44.9	2.0	0.1	2.0							
1-22	0945- 1030	0.75	MID 15'	-	200	-	-	44.6	2.3	0	2.2							
1-22	1030- 1215/ 1225- 1325	2.5	34.5	1	200	-	-	43.3	3.6	0.2	3.6							
1-22	1350- 1540	1.8	34.5	2	200	-	-	43.3	3.6	0	3.4							
1-22/ 1-23	1540- 1700/ 0730- 0815	2.1	34.5	3	200	4.5 1.0	2.5	43.9	3.0	0	3.0							
1-23	0845- 0955	1.7	34.5	4	200	-	-	44.4	2.5	0.3	2.5							
1-23	1000- 1135	1.6	34.5	5	200	-	-	44.9	2.0	0.1	1.7							
1-23	1140- 1210/ 1310- 1420	1.7	34.5	6	200	-	-	44.4	2.5	0.2	2.4							
1-23	1425- 1600	1.6	34.5	7	200	4.0 1.0	3.0	44.3	2.6	0.4	2.4							
1-23/ 1-24	1600- 1630/ 0745- 0900	1.75	34.5	8	200	-	-	44.9	2.0	0	1.6							
1-24	0905- 1045	1.7	34.5	9	200	-	-	45.3	1.6	0	1.6							
1-24	1050- 1230	1.7	34.5	10	200	2.5 1.0	1.5	44.4	2.5	0.3	2.5							
CONTINUED																		
TOTAL SAND BROUGHT INTO WELL: 37.0 FT						TOTAL SETTLEMENT OF FILTER: 8.5 FT												
NOTES:(1) DEVELOPMENT TIME INCLUDES REMOVING SAND FROM BOTTOM OF WELL, DAILY PREPARATION FOR JETTING AFTER INITIAL SET UP AND ACTUAL JETTING TIME.																		
MOST OF THE MATERIAL REMOVED FROM THE WELL WAS A FINE SAND. <u>SOME GRAVEL PACK</u>																		

INSPECTOR CHARLES CONLON

JETTING DATA

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NOTES: SAND BROUGHT INTO WELL WAS NOT DIMINISHING.

A PRELIMINARY PUMP TEST WAS PERFORMED FOR 1 HR AT A FLOW RATE OF 80 GPM. DRAWDOWN = 4.6 FT, WATER WAS CLEAR FROM THE BEGINNING, AND NO SAND COLLECTED IN BOTTOM OF WELL.

INSPECTOR CHARLES CONLON

APPENDIX C

RELIEF WELL PUMPING TEST REPORTS

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION						
LOCATION (STA):	O + 20	OFFSET FROM CENTERLINE: 200 FT DIS	RELIEF WELL NO: RW-1					
CONTRACTOR: R.E. CHAPMAN CO.		OPERATOR: WALTER ALLEN						
DATE: 12-17-85	TIME TEST STARTED: 1001 HRS	TIME TEST COMPLETED: 1601 HRS						
ELEV INSIDE BOTTOM OF WELL: 420.3	ELEV PUMP INTAKE: 422.2 NGVD	LENGTH OF WELL SCREEN: 44.75 FT						
PUMP:- Type: PIONEER Model: KPZ30-Z Capacity: 300 GAL/MIN		METHOD FOR MEASURING FLOW: PIEZOMETRIC TUBE WITH 3" ORIFICE AND 4" PIPE						
SAND BROUGHT INTO WELL DURING PUMPING: 0.2 FT		SETTLEMENT OF FILTER DURING PUMPING: 0						
TOTAL PUMPING TIME: 6.0 HRS		RATE OF PUMPING: 216 GAL/MIN						
DRAWDOWN: 18.8 FT		SPECIFIC CAPACITY: 11.5 GPM/FT						
MONITORING LOCATION		RW-1	RW-2					
DEPTH TO WATER BEFORE PUMPING (FT)		14.4	12.3					
ELEVATION OF REFERENCE		478.59	476.26					
RADIAL DISTANCE FROM PUMPING LOCATION (FT)		0	50					
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
1001	0	—	14.4	0	12.3	0	11.1	0
1005	4	167	25.8	11.4				
1012	11	199	29.8	15.4	12.5	0.2	11.2	0.1
1022	21	199	29.4	15.0				
1031	30	197	29.7	15.3				
1046	45	197	29.9	15.5				
1101	60	214	31.6	17.2	12.9	0.6	11.4	0.3
1131	90	214	32.0	17.6				
1201	120	214	32.5	18.1				
1301	180	215	32.6	18.2	13.4	1.1	11.7	0.6
1401	240	216	32.8	18.4				
1501	300	216	33.0	18.6				
NOTES:								

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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NOTES: (1) WATER LEVELS MEASURED IN PIEZOMETERS WAS THE SAME FOR BOTH THE WHITE AND THE GRAY PVC.PIPES.

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEAD LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION						
LOCATION (STA):	O + 20	OFFSET FROM CENTERLINE:	150 FT D/S OF BASELINE					
CONTRACTOR: R.E. CHAPMAN CO.		OPERATOR: WALTER ALLEN						
DATE: 12-18-85	TIME TEST STARTED: 0955 hrs	TIME TEST COMPLETED: 1555 hrs						
ELEV INSIDE BOTTOM OF WELL: 420.3	ELEV PUMP INTAKE: 427.3 NGVD	LENGTH OF WELL SCREEN: 44.75 FT						
PUMP:- Type: PIONEER Model: KP230-2 Capacity: 300 GAL/MIN	METHOD FOR MEASURING FLOW: PILOT TUBE WITH 1-3/4" NOZZLE PLAIT PIPE.							
SAND BROUGHT INTO WELL DURING PUMPING: 0.3 FT	SETTLEMENT OF FILTER DURING PUMPING: 0							
TOTAL PUMPING TIME: 6.0 HRS	RATE OF PUMPING: 200 GAL/MIN							
DRAWDOWN: 12.9 FT	SPECIFIC CAPACITY: 15.5 GPM/FT							
MONITORING LOCATION	RW-2	RW-1	RW-3					
DEPTH TO WATER BEFORE PUMPING (FT)	12.5	14.6	11.3					
ELEVATION OF REFERENCE	476.26	478.59	475.24					
RADIAL DISTANCE FROM PUMPING LOCATION (FT)	0	50	50					
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0955	0	—	12.5	0	14.6	0	11.3	0
1055	10	120	19.9	7.4				
1016	21	170	22.3	9.8				
1038	43	185	(1) 24.4	11.9				
1058	63	219	23.1	10.6				
1125	90	200	23.8	11.3				
1155	120	200	24.0	11.5				
1255	180	200	24.4	11.9	15.6	1.0	11.9	0.6
1355	240	200	24.7	12.2				
1455	300	200	24.8	12.3				
1555	360	200	25.4	12.9	16.0	1.4	12.2	0.9
NOTES: (1) AT APPROX. 1025HRS REMOVED 1-3/8" NOZZLE FROM PLAIT PIPE AND FLOW INCREASED TO APPROX. 270 GPM FOR A SHORT PERIOD OF TIME CAUSING PUMPED WATER TO TURN YELLOW FOR APPROX. 10 MIN.								

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): O+20 OFFSET FROM CENTERLINE: 100 FT DIS RELIEF WELL NO: RW-3

CONTRACTOR: R.E. CHAPMAN CO. OPERATOR: WALTER ALLEN

DATE: 1-8-86 TIME TEST STARTED: 0715 HRS TIME TEST COMPLETED: 1315 HRS

ELEV INSIDE BOTTOM OF WELL: 420.3 ELEV PUMP INTAKE: 426.2 NGVD LENGTH OF WELL SCREEN: 44.75 FT

PUMP: - Type: PIONEER
Model: KPZ30-2
Capacity: 300 GAL/MIN

METHOD FOR MEASURING FLOW:
PILOT TUBE WITH 1-3/4" NOZZLE ON PLAIT PIPE

SAND BROUGHT INTO WELL DURING PUMPING: 0.3 FT

SETTLEMENT OF FILTER DURING PUMPING: -0- FT

TOTAL PUMPING TIME: 6.0 HRS

RATE OF PUMPING: 200 GAL/MIN

DRAWDOWN: 23.8 FT

SPECIFIC CAPACITY: 6.9 GPM/FT

MONITORING LOCATION		RW-3		RW-4		RW-5	
DEPTH TO WATER BEFORE PUMPING (FT)		11.8		11.2		11.1	
ELEVATION OF REFERENCE		475.24		474.74		474.30	
RADIAL DISTANCE FROM PUMPING LOCATION (FT)		0		50		102	
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)
0715	0	—	11.8	0	11.2	0	11.1
0730	15	125	24.2	12.4			
0745	30	160	27.1	15.3			
0815	60	204	31.6	19.8			
0915	120	196	33.7	21.9			
1015	180	200	35.0	23.2	13.1	1.9	11.3
1115	240	200	35.2	23.4			
1215	300	200	35.4	23.6			
1315	360	200	35.6	23.8	13.6	2.4	11.4
1315	TURN PUMP OFF						0.3
1316	1	—	16.5	4.7			
1320	5	—	13.5	1.7			

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 2 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT RELIEF WELL NO: RW-3

DATE: 1-8-86 TIME TEST STARTED: 0715 HRS TIME TEST COMPLETED: 1315 HRS

MONITORING LOCATION

RW-1

RW-2

DEPTH TO WATER BEFORE PUMPING (FT)

15.0

12.9

ELEVATION OF REFERENCE

478.59

476.26

RADIAL DISTANCE FROM PUMPING LOCATION (FT)

100

50

TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0715	0	—	15.0	0	12.9	0		
1015	180	200	15.6	0.6	13.6	0.7		
1315	360	200	15.9	0.9	13.9	1.0		

MONITORING LOCATION

DEPTH TO WATER BEFORE PUMPING (FT)

ELEVATION OF REFERENCE

RADIAL DISTANCE FROM PUMPING LOCATION (FT)

TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): 0+20 OFFSET FROM CENTERLINE: 50 FT D/S OF BASELINE RELIEF WELL NO: RW-4

CONTRACTOR: R.E. CLAPMAN CO.

OPERATOR: WALTER ALLEN

DATE: 1-9-85

TIME TEST STARTED:

0745 HRS

TIME TEST COMPLETED:

1345 HRS

ELEV INSIDE BOTTOM OF WELL: 420.3

ELEV PUMP INTAKE:

425.7 NGVD

LENGTH OF WELL SCREEN:

42.75 FT

PUMP: - Type: PIONEER

Model: KPZ30-Z

Capacity: 300 GAL/MIN

METHOD FOR MEASURING FLOW:

PITOT TUBE WITH 1-3/4" NOZZLE ON PLAIT PIPE

SAND BROUGHT INTO WELL DURING PUMPING: 0.8 FT

SETTLEMENT OF FILTER DURING PUMPING: -0- FT

TOTAL PUMPING TIME: 6.0 HRS

RATE OF PUMPING: 204 GAL/MIN

DRAWDOWN: 17.5 FT

SPECIFIC CAPACITY: 11.7 GPM/FT

MONITORING LOCATION

RW-4

RW-5

RW-3

DEPTH TO WATER BEFORE PUMPING (FT)

11.3

11.2

11.9

ELEVATION OF REFERENCE

474.74

474.30

475.24

RADIAL DISTANCE FROM PUMPING LOCATION (FT)

0

54

50

TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0745	0	—	11.3	0	11.2	0	11.9	0
0800	15	125	21.1	9.8				
0815	30	170	23.9	12.6				
0845	60	204	27.2	15.9				
0945	120	204	27.8	16.5				
1045	180	204	28.2	16.9	11.5	0.3	13.2	1.3
1145	240	204	28.5	17.2				
1245	300	204	28.7	17.4				
1345	360	204	28.8	17.5	11.7	0.5	13.6	1.7
1345	TURN PUMP OFF							
1348	3	—	14.0					
1353	8	—	13.6					

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 2 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT

RELIEF
WELL NO: RW - 4

DATE: 1-9-85

TIME TEST
STARTED:

TIME 24

MONITORING LOCATION

RW- 2

RW-1

DEPTH TO WATER
BEFORE PUMPING (FT)

13.

15.2

ELEVATION OF REFERENCE

476.26

478.59

RADIAL DISTANCE FROM
PUMPING LOCATION (FT)

100

150

MONITORING LOCATION

DEPTH TO WATER
BEFORE PUMPING (FT)

LEVEL OF REFERENCE

RADIAL DISTANCE FROM
PUMPING LOCATION (FT)

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT		DISTRICT: NEW ENGLAND DIVISION						
LOCATION (STA):	0+40	OFFSET FROM CENTERLINE:	1/4 OF BASELINE					
CONTRACTOR: R.E. CHAPMAN CO.		OPERATOR: WALTER ALLEN						
DATE: 1-10-85	TIME TEST STARTED: 0550 HRS	TIME TEST COMPLETED: 1150 HRS						
ELEV INSIDE BOTTOM OF WELL: 420.6	ELEV PUMP INTAKE: 431.5 NGVD	LENGTH OF WELL SCREEN: 40.5						
PUMP:- Type: PIONEER Model: KP230-2 Capacity: 300 GAL/MIN		METHOD FOR MEASURING FLOW: PILOT TUBE WITH 1-3/4" NOZZLE ON PLAIT PIPE						
SAND BROUGHT INTO WELL DURING PUMPING: 0.3 FT		SETTLEMENT OF FILTER DURING PUMPING: -0- FT						
TOTAL PUMPING TIME: 6.0 HRS		RATE OF PUMPING: 210 GAL/MIN						
DRAWDOWN: 27.5 FT		SPECIFIC CAPACITY: 7.6 GPM/FT						
MONITORING LOCATION		RW-5	RW-4					
DEPTH TO WATER BEFORE PUMPING (FT)		11.0	11.5					
ELEVATION OF REFERENCE		474.30	474.74					
RADIAL DISTANCE FROM PUMPING LOCATION (FT)		0	54					
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0550	0	—	11.0	0	11.5	0	12.0	0
0605	15	155	32.2	21.2				
0620	30	155	31.9	20.9				
0650	60	155	31.9	20.9				
0720	90	192	38.3	27.3				
0750	120	192	38.5	27.5				
0850	180	210	38.5	27.5	11.8	0.3	12.2	0.2
0950	240	210	38.7	27.7				
1050	300	210	38.5	27.5				
1150	360	210	38.5	27.5	11.9	0.4	12.3	0.3
1150	TURN PUMP OFF							
1151	1	—	19.0	8.0	RECOVERY			
NOTES:								

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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PROJECT: TOWNSHEND LAKE, VERMONT

RELIEF
WELL NO: RW-5

DATE: 1-10-85

TIME TEST
STARTED: 0550 HRSTIME TEST
COMPLETED: 1150 HRS

MONITORING LOCATION

RW-2

RW-1

DEPTH TO WATER
BEFORE PUMPING (FT)

13.2

15.3

ELEVATION OF REFERENCE

476.26

478.59

RADIAL DISTANCE FROM
PUMPING LOCATION (FT)

151

201

TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0550	0	—	13.2	0	15.3	0		
0850	180	210	13.4	0.2	15.4	0.1		
1150	360	210	13.4	0.2	15.5	0.2		

MONITORING LOCATION

RW-5

DEPTH TO WATER
BEFORE PUMPING (FT)

11.0

ELEVATION OF REFERENCE

474.30

RADIAL DISTANCE FROM
PUMPING LOCATION (FT)

0

TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
1155	5	—	11.5	0.5	RECOVERY			
1200	10	—	11.4	0.4				

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): 1 + 00 OFFSET FROM CENTERLINE: 10' OF BASELINE RELIEF WELL NO: RW-6

CONTRACTOR: R.E. CHAPMAN CO. OPERATOR: WALTER ALLEN

DATE: 2-4-86 TIME TEST STARTED: 1249 HRS TIME TEST COMPLETED: 1849 HRS

ELEV INSIDE BOTTOM OF WELL: 420.6 ELEV PUMP INTAKE: 422.9 LENGTH OF WELL SCREEN: 35.5 FT

PUMP:- Type: PIONEER
Model: KP230-2
Capacity: 300 GAL/MIN

METHOD FOR MEASURING FLOW:
PIEZOMETRIC TUBE WITH 3" ORIFICE AND 4" PIPE.

SAND BROUGHT INTO WELL DURING PUMPING: 0.2 FT SETTLEMENT OF FILTER DURING PUMPING: - 0 -

TOTAL PUMPING TIME: 6.0 HRS RATE OF PUMPING: 219 GAL/MIN

DRAWDOWN: 12.4 FT SPECIFIC CAPACITY: 17.7 GPM/FT

MONITORING LOCATION	RW-6	RW-5	RW-4
DEPTH TO WATER BEFORE PUMPING (FT)	8.3	10.2	10.2
ELEVATION OF REFERENCE	471.86	474.30	474.74
RADIAL DISTANCE FROM PUMPING LOCATION (FT)	0	60	94
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)
1249	0	—	8.3
1304	15	130	14.2
1319	30	130	14.9
1349	60	216	20.2
1449	120	219	20.1
1549	180	219	20.3
1649	240	219	20.4
1749	300	219	20.5
1849	360	219	20.7
1849	TURN PUMP OFF		
1851	2	—	9.2
1855	6	—	8.7
RECOVERY			
0.9			

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): 1 + 50 OFFSET FROM 20 FT DIS CENTERLINE: OF BASELINE RELIEF WELL NO: RW-7

CONTRACTOR: R.E. CHAPMAN CO. OPERATOR: CHARLIE FROST

DATE: 2-12-86 TIME TEST STARTED: 0815 HRS TIME TEST COMPLETED: 1415 HRS

ELEV INSIDE BOTTOM OF WELL: 420.6 ELEV PUMP INTAKE: 427.7 LENGTH OF WELL SCREEN: 34.5 FT

PUMP: - Type: PIONEER
 Model: KPZ30-2
 Capacity: 300 GAL/MIN

METHOD FOR MEASURING FLOW:
 PIEZOMETRIC TUBE WITH
 3" ORFICE AND 4" PIPE

SAND BROUGHT INTO WELL DURING PUMPING: 0.1 FT SETTLEMENT OF FILTER DURING PUMPING: - O -

TOTAL PUMPING TIME: 6.0 HRS RATE OF PUMPING: 214 GAL/MIN

DRAWDOWN: 10.4 FT SPECIFIC CAPACITY: 20.6 GPM/FT

MONITORING LOCATION		RW-7	RW-8	RW-9
DEPTH TO WATER BEFORE PUMPING (FT)		5.8	5.1	5.4
ELEVATION OF REFERENCE		472.00	467.50	467.50
RADIAL DISTANCE FROM PUMPING LOCATION (FT)		0	50	100
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0815	0	—	5.8	0
0830	15	183	13.6	7.8
0845	30	203	15.2	9.4
0915	60	203	15.4	9.6
1015	120	205	15.5	9.7
1115	180	205	15.7	9.9
1215	240	205	15.8	10.0
1315	300	214	16.0	10.2
1415	360	214	16.2	10.4
1415	TURN PUMP OFF		—	—
1416	1	—	9.0	3.2
1420	5	—	6.5	0.7

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): 2 + 00 OFFSET FROM 20 FT DIS CENTERLINE: OF BASELINE RELIEF WELL NO: RW-8

CONTRACTOR: R.E. CHAPMAN CO. OPERATOR: WALTER ALLEN

DATE: 2-6-86 TIME TEST STARTED: 0800 HRS TIME TEST COMPLETED: 1400 HRS

ELEV INSIDE BOTTOM OF WELL: 420.6 ELEV PUMP INTAKE: 426.8 LENGTH OF WELL SCREEN: 34.5 FT

PUMP:- Type: PIONEER
Model: KPZ30-2
Capacity: 300 GAL/MINMETHOD FOR MEASURING FLOW:
PIEZOMETRIC TUBE WITH
3" ORIFICE AND 4" PIPE:

SAND BROUGHT INTO WELL DURING PUMPING: 0.3

SETTLEMENT OF FILTER DURING PUMPING: -0-

TOTAL PUMPING TIME: 6.0 HRS

RATE OF PUMPING: 250 GAL/MIN

DRAWDOWN: 13.3 FT

SPECIFIC CAPACITY: 18.8 GPM/FT

MONITORING LOCATION			RW-8	RW-9	RW-6			
DEPTH TO WATER BEFORE PUMPING (FT)			5.0	5.3	8.3			
ELEVATION OF REFERENCE			467.50	467.50	471.86			
RADIAL DISTANCE FROM PUMPING LOCATION (FT)			0	50	102			
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0800	0	—	5.0	0	5.3	0	8.3	0
0815	15	183	13.8	8.8				
0830	30	183	14.0	9.0				
0900	60	205	15.0	10.0				
1000	120	212	15.8	10.8				
1100	180	212	16.0	11.0			9.3	1.0
1200	240	250	18.1	13.1				
1300	300	250	18.2	13.2				
1400	360	250	18.3	13.3	8.2	2.9	9.6	1.3
1400	TURN PUMP OFF							
1402	2	—	6.8	1.8	RECOVERY			
1405	5	—	6.0	1.0				

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

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NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 1 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT DISTRICT: NEW ENGLAND DIVISION

LOCATION (STA): Z + 50 OFFSET FROM CENTERLINE: 20 FT DIS OF BASELINE RELIEF WELL NO: RW-9

CONTRACTOR: R.E. CHAPMAN CO. OPERATOR: WALTER ALLEN

DATE: 2-5-86 TIME TEST STARTED: 0930 HRS TIME TEST COMPLETED: 1530 HRS

ELEV INSIDE BOTTOM OF WELL: 420.6 ELEV PUMP INTAKE: 426.8 LENGTH OF WELL SCREEN: 34.5 FT

PUMP:- Type: PIONEER
 Model: KPZ30-Z
 Capacity: 300 GAL/MIN

METHOD FOR MEASURING FLOW:
 PIEZOMETRIC TUBE WITH 3" ORFICE AND 4" PIPE

SAND BROUGHT INTO WELL DURING PUMPING: 0.2 FT SETTLEMENT OF FILTER DURING PUMPING: - 0 -

TOTAL PUMPING TIME: 6.0 HRS RATE OF PUMPING: 219 GAL/MIN

DRAWDOWN: 18.2 FT SPECIFIC CAPACITY: 12.0 GPM/FT

MONITORING LOCATION	RW-9	RW-8	RW-6					
DEPTH TO WATER BEFORE PUMPING (FT)	5.2	5.0	8.3					
ELEVATION OF REFERENCE	467.50	467.50	471.86					
RADIAL DISTANCE FROM PUMPING LOCATION (FT)	0	50	151					
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0930	0	—	5.2	0	5.0	0	8.3	0
0950	20	100	11.9	6.7				
1000	30	154	17.0	11.8				
1030	60	192	20.9	15.7				
1130	120	214	23.0	17.8				
1230	180	214	23.0	17.8	6.3	1.3	8.7	0.4
1330	240	214	23.1	17.9				
1430	300	216	23.2	18.0				
1530	360	219	23.4	18.2	6.3	1.3	8.7	0.4
1530	TURN PUMP OFF							
1532	2	—	7.4	2.2	RECOVERY			
1535	5	—	6.0	0.8				

NOTES:

INSPECTOR

CHARLES CONLON

PUMPING TEST REPORT

PAGE 2 OF 2

PROJECT: TOWNSHEND LAKE, VERMONT	RELIEF WELL NO:	RW-9						
DATE: 2-5-86	TIME TEST STARTED: 0930 hrs	TIME TEST COMPLETED: 1530 hrs						
MONITORING LOCATION	RW-5	RW-4						
DEPTH TO WATER BEFORE PUMPING (FT)	10.3	10.3						
ELEVATION OF REFERENCE	474.30	474.74						
RADIAL DISTANCE FROM PUMPING LOCATION (FT)	211	232						
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0930	0	—	10.3	0	10.3	0	10.8	0
1230	180	214	10.6	0.3	10.4	0.1	10.9	0.1
1530	360	219	10.6	0.3	10.4	0.1	10.9	0.1

MONITORING LOCATION	RW-2	RW-1						
DEPTH TO WATER BEFORE PUMPING (FT)	12.0	14.1						
ELEVATION OF REFERENCE	476.26	478.59						
RADIAL DISTANCE FROM PUMPING LOCATION (FT)	264	292						
TIME	ELAPSED TIME (MIN)	OUTFLOW (GAL/MIN)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)	DEPTH TO WATER (FT)	DRAWDOWN (FT)
0930	0	—	12.0	0	14.1	0		
1230	180	214	12.1	0.1	14.1	0		
1530	360	219	12.1	0.1	14.1	0		

NOTES:

INSPECTOR

CHARLES CONLON

APPENDIX D
DAILY LOGS OF CONSTRUCTION

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 1	
						DATE 12 NOV 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER JACW 33-85-D-0010	
PROJECT TOWNSHEAD LAKE - RELIEF WELLS						WEATHER HIGH 30'S F RAINING	
CONTRACTOR (Or hired labor) R.E. CHAPMAN CO.						SHIFT	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION 3	BORROW EXCAVATION S	EMBANKMENT S	CONCRETE 4	STRUCTURE S		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION 1	TOTAL 1	LABOR	FEET	TIME M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> 1. UNLOADED MUD TUB AND SMALL FRONT END LOADER. 2. SET DRILL RIG UP ON RELIEF WELL RW-1. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. OUTLET TO RIVER IS APPROX. 600 FT FROM DRILL RIG. CONTRACTOR DOES NOT HAVE ENOUGH HOSE TO PUMP THAT DISTANCE. AFTER SHORT PUMP TEST DECIDED HE COULD PUMP ENOUGH WATER FROM EXISTING OBSERVATION RISER APPROX. 200 FT FROM DRILL RIG.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 2
TO: MR. JAMES LEONARD							DATE 13 NOV 85
PROJECT TOWNSHEND LAKE - RELIEF WELLS							CONTRACT NUMBER DACW 33-85-D-0010
CONTRACTOR (Or hired Labor) R. E. CHAPMAN CO.							WEATHER LOW OCCASIONAL 40'S F LIGHT RAIN
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE.
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
	3		1	4			M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> INSTALLED 24" Dia SURFACE CASING TO 6.5 FT DEPTH. PUMPED WATER FROM EXISTING OBSERVATION RISER INTO MUD TUB AND MIXED WITH REVERT DRILLING MUD. ADVANCED 23" Dia HOLE WITH ROLLERBIT TO 28 FT DEPTH, FOR RELIEF WELL RW-1. 							
<u>REMARKS</u>							
<ol style="list-style-type: none"> CHARLIE MILLER (NED-USLE) VISITED SITE FROM APPROX. 1100-1200 HRS. GAVE ME A COPY OF CONTRACTORS SUBMITTALS. JOHN HART AND PAUL L'HEUREUX (NED-USLE) VISITED SITE FROM APPROX. 1230-1300 HRS. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. WELDED PIECE OF METAL TO MUD TUB.
 2. CUT A SECTION METAL FROM MUD TUB TO INCREASE FLOW GRADIENT FROM SURFACE TO MUD TUB.

INSTRUCTIONS GIVEN TO CONTRACTOR - **INFORMATION RECEIVED FROM CONTRACTOR**

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 3	
TO: MR. JAMES LEONARD						DATE 14 NOV 85	
PROJECT TOWNSHEND LAKE, VT - RELIEF WELLS						CONTRACT NUMBER DACLW-33-85-D-0010	
CONTRACTOR (Or hired labor) R.E. CHAPMAN CO.						WEATHER HIGH 30'S F RAINED IN AFTERNOON	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE.	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
						RIVER STAGE	
						M	

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. SUPPLY TRUCK ARRIVED AT 0730 HRS.
2. UNLOADED RELIEF WELL MATERIALS FOR ALL 9 WELLS, TREMIE PIPE AND HOPPER, AND PORTABLE PUMP.
3. EMPTIED CUTTINGS FROM MUD TUB AND MIXED NEW DRILLING MUD.
4. ADVANCED HOLE FROM 28 FT TO 51 FT DEPTH.

REMARKS

1. RELIEF WELL MATERIALS THAT ARRIVED ON SITE TODAY MET PROJECT SPECIFICATIONS.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

NONÉ

SAFETY HAZARDS ENCOUNTERED

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION							REPORT NUMBER <u>4</u>
							DATE 15 NOV 85
TO: MR. JAMES LEONARD							CONTRACT NUMBER DACW 33-85-D-0010
PROJECT TOWNSHEND LAKE, VT - RELIEF WELLS							WEATHER LOW 30'S F SLIGHT WIND SUNNY
CONTRACTOR (Or hired labor) R.E. CHAPMAN							SHIFT
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL <u>2</u>	LABOR	FEET	TIME M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> 1. CLEANED CUTTINGS OUT OF MUD TUB AND THICKENED MUD. 2. COMPLETED DRILLING THE RELIEF WELL HOLE FOR RW-1 FROM 51 FT TO 57.5 FT. 3. WELDED 2 FT RISER AND 4 FT WELL SCREEN BELOW TEE SECTION. 4. EMPTIED ALL HOSES AND PUMP LINES AND PUT AN ADDITIVE IN REVERT DRILLING TO RETARD ITS DISCENTIGATION OVER THE WEEKEND. 							
<u>REMARKS</u>							
<ol style="list-style-type: none"> 1. JOHN HART (NED USCE) VISITED THE SITE FROM APPROX 1030-1100 HRS. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

No JE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 5	
TO: MR. JAMES LEONARD						DATE 18 NOV 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW 33-85-D-0010	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW 40's SUNNY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1630	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORKED PERFORMED</u>							
<ol style="list-style-type: none"> 1. CLEANED OUT MATERIAL COLLECTED IN THE BOTTOM OF THE HOLE OVER THE WEEKEND. 2. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-1. TOTAL LENGTH OF WELL SCREEN = 44' 9" 3. CIRCULATED APPROX. 35 LBS OF CALCIUM HYPOCHLORITE POWDER THROUGH REVERT DRILLING FLUID TO BREAK IT DOWN FOR APPROX 45 MIN. 4. PLACED GRAYEL PACK. TO THE BOTTOM OF THE TEE SECTION OF THE RISER PIPE. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

I. DIFFICULTY GETTING TREMIE PIPE PAST SPIDERS
AND GETTING GRAVEL PACK TO FLOW DOWN
THROUGH TREMIE PIPE.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1630	9.0	2	WELL DRILLERS	18.0
	SUPPLY TRUCK	0700 1630	9.0			-
	DOZER	0700 1630	9.0			
	2 - PUMPS	0700 1630	9.0			
	BACK HOE		0			
	FRONT LOADER		0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 6	
TO: MR. JAMES LEONARD						DATE 19 NOV 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DAGW 33-85-D-0010	
CONTRACTOR (Or hired labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER HIGH CLOUDY 40's F	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700-1545	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. BEGAN DEVELOPMENT OF RELIEF WELL RW-1. 1) FLUSHED CLEAN WATER THROUGH WELL AND GRAVEL PACK. 2) PERFORMED JETTING FOR 30 FT LENGTH OF SCREEN AND REMOVED MATERIAL COLLECTED IN BOTTOM OF GRAVEL PACK. 3) DEVELOPMENT TIME = 3.0 HRS.							
2. BEGAN EXCAVATION FOR CONCRETE WALL.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. PREVIOUS WATER SOURCE (EXISTING OBSERVATION RISER) RAN DRY DURING JETTING. CONTRACTOR IS HAVING MORE HOSE TO REACH THE RIVER DELIVERED TOMORROW MORNING.
 2. BACKHOE NOT RUNNING WELL.

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 7	
						DATE 20 NOV 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACW 33-85-D-0010	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER MID 50'S F PARTLY CLOUDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E.CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1645	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

Work Performed

1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-1.
 - 1) PERFORMED JETTING FOR 44 FT LENGTH OF SCREEN AND REMOVED MATERIAL COLLECTED IN BOTTOM OF WELL.
 - 2) DEVELOPMENT TIME = 6.0 HRS.
CUMULATIVE DEVELOPMENT TIME = 9.0 HRS.
2. COMPLETED EXCAVATION FOR CONCRETE WALL AND POURED 12 IN LIFT OF WALL FOOTING.

REMARKS

1. DAVID WHITNEY AND WALTER ALLEN (R.E.CHAPMAN) ON SITE FOR APPROX. 2 HRS. TO OBSERVE PROGRESS OF RELIEF WELL DEVELOPMENT.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 8	
						DATE 21 NOV 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACLW 33-85-D-0010	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH SUNNY 30'S F WINDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1630	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL 2	LABOR	FEET	TIME H

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-1.
 - 1) PERFORMED JETTING FOR 44 FT LENGTH OF SCREEN AND REMOVED MATERIAL COLLECTED IN BOTTOM OF WELL.
 - 2) DEVELOPMENT TIME = 8.5 HRS
CUMULATIVE DEVELOPMENT TIME = 17.5 HRS.
2. STEEL DOWELS PLACED IN CONCRETE WALL FOOTING. FORMWORK FOR CONCRETE WALL BEGUN. PUMPING STEADY FLOW OF WATER OUT OF EXCAVATION TO MAINTAIN WATER LEVEL BELOW TOP OF CONCRETE WALL FOOTING. COVERED TOP OF CONCRETE SURFACE WITH HAY TO PROTECT FROM FREEZING OVERNIGHT.

REMARKS

1. CHARLIE MILLER (NED-USCE) ON SITE TO OBSERVE PROGRESS AND PERFORMANCE OF WORK FOR APPROX. 2 HRS.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END			
	DRILL RIG	0700	1630	9.0	2	WELL DRILLERS
	SUPPLY TRUCK	0700	1630	9.0		
	DOZER	0700	1630	9.0	3	CONCRETE LABORERS
	2-PUMPS	0700	1630	9.0		30.0*
	BACKHOE			0		
	FRONT LOADER			0		
	CONCRETE SUPPLY TRUCK	0700	1700	10.0*		
	3-PUMPS	ALL DAY & NIGHT *				
	* APPROX. NUMBER OF HOURS					

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 9	
TO: MR. JAMES LEONARD						DATE 22 NOV 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DAGW 33-85-D-0010	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW CLOUDY 30'S F SLEET IN AFTERNOON	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1300	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-1.</p> <p>1) PERFORMED JETTING FOR 44 FT LENGTH OF SCREEN AND REMOVED MATERIAL COLLECTED IN BOTTOM OF WELL.</p> <p>2) DEVELOPMENT TIME = 4.5 HRS..</p> <p>TOTAL DEVELOPMENT TIME = 22.0 HRS.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION
	DRILL RIG	0700 1300	5.5	2	WELL DRILLERS
	SUPPLY TRUCK	0700 1300	5.5		
	DOZER	0700 1300	5.5		
	Z-PUMPS	0700 1300	5.5		
	FRONT LOADER		0		
	BACK HOE		0		

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 10	
						DATE 25 NOV 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DADM 33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH SUNNY 30'S F WINDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700-1645	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. SET DRILL RIG UP ON RELIEF WELL RW-2. INSTALLED 24" DIA. SURFACE CASING TO A DEPTH OF 7.5 FT AND ADVANCED A 23" DIA HOLE TO A DEPTH OF 15 FT.</p> <p>2. WELDED ADDITIONAL RISER ON RW-1 TO EXTEND THE WELL 3.5' ABOVE GROUND SURFACE AND WELDED FLANGE ON TOP OF RISER. INSTALLED PAY LENGTH = 55.8 FT. (PAY LENGTH = LENGTH BETWEEN GROUND SURFACE AND ELEVATION ONE FOOT BELOW BOTTOM OF WELL SCREEN.)</p> <p>3. COMPLETED FORMWORK FOR CONCRETE WALL FOR CONTAINMENT DIKE.</p>							
<u>REMARKS</u>							
<p>1. DEVELOPMENT TIMES PREVIOUSLY RECORDED DID NOT INCLUDE DAILY PREPARATION TIME FOR THE DRILLER. HOWEVER, NED-LISC HAS NOW DECIDED TO INCLUDE THAT TIME IN THE DEVELOPMENT TIME. THEREFORE, CORRECT TIMES FOR LAST WEEKS DEVELOPMENT OF RW-1 ARE AS FOLLOWS: NOV 19 - 4.0 HRS, NOV 20 - 7.0 HRS, NOV 21 - 9.0 HRS, NOV 22 - 5.0 HRS., TOTAL DEVELOPMENT TIME = 25.0 HRS.</p>							
TITLE GEOTECHNICAL ENGINEER		SIGNATURE Charles R. Conlon					

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. SURFACE OF SOIL AND WATER IN MUD TUB FROZEN.
 2. REPAIRED LEAK IN DRILL HEAD.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

INSTRUCTIONS GIVEN TO CONTRACTOR

1. NEED TEMPORARY CASING FROM TEE INVERT TO GROUND SURFACE.

INFORMATION RECEIVED FROM CONTRACTOR

1. CONTRACTOR CALLED HIS OFFICE. TEMPORARY CASING WILL BE ON SITE TOMORROW MORNING.

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 11	
TO: MR. JAMES LEONARD						DATE 26 NOV 85	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH SNOW MOST OF DAY 20°F	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1645	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. INSTALLED TEMPORARY CASING AROUND RW-1.</p> <p>2. ADVANCED 23" DIA HOLE FOR RELIEF WELL RW-2 FROM 15 FT. TO 58 FT.</p> <p>3. POURED CONCRETE WALL FOR CONTAINMENT DIKE. POURED CONCRETE IN APPROX. 18" LIFTS USING A TREMIE AND INSERTING A VIBRATORY ROD IN THE CONCRETE AS IT WAS POURED. CONCRETE WALL WAS COVERED WITH PLASTIC AND KEPT WARM WITH A PROPANE GAS HEATER.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. DIFFICULTY GETTING PUMP ON DRILL RIG TO WORK
AFTER COLD WEATHER LAST NIGHT.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.

PAGE NO(S).

CONTRACTOR'S PLANT

CONTRACTOR'S LABOR

PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END				
	DRILL RIG	0700	1645	9.25	2	WELL DRILLERS	18.5
	SUPPLY TRUCK	0700	1645	9.25			
	DOZER	0700	1645	9.25	6	CONCRETE LABORERS	63*
	Z PUMPS	0700	1645	9.25			
	BALLOONS			0			
* APPROX. NO. OF HOURS							

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 12
							DATE 27 NOV 85
TO: MR. JAMES LEONARD							CONTRACT NUMBER DACW 33-85-B-0029
PROJECT TOWNSHEND LAKE, VERMONT							WEATHER HIGH CLOUDY, 30's F MORNING RAIN
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							SHIFT 0700 - 1515
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE.
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-2.
TOTAL LENGTH OF WELL SCREEN = 44.75 FT
TOTAL LENGTH OF RISER PIPE = 11.3 FT.
2. CIRCULATED APPROX. 30 LBS OF CALCIUM HYPOCHLORITE POWDER THROUGH REVERT DRILLING FLUID TO BREAK DOWN ITS VISCOSITY. FOR APPROX. 1 HR.
3. PLACED GRAVEL PACK AROUND THE WELL SCREEN TO A DEPTH OF 2 FT ABOVE THE WELL SCREEN.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION								REPORT NUMBER SF-13	
								DATE 28 NOV 85	
TO: MR. JAMES LEONARD								CONTRACT NUMBER DACPW 33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT								WEATHER	
CONTRACTOR (Or hired labor) RELIEF WELLS- R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.								SHIFT	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS								TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM		
NUMBER OF GOVERNMENT EMPLOYEES								RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME		
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)									
INCLUDE UNDER REMARKS. (Material, visitors, etc.)									
<u>WORK PERFORMED</u>									
1. NO WORK PERFORMED. THANKSGIVING HOLIDAY.									
TITLE GEOTECHNICAL ENGINEER					SIGNATURE Charles R. Conlon				

DIFFICULTIES ENCOUNTERED AND DELAYS. (Account for each hole, monolith, etc., separately)

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

ACCIDENTS AND CAUSE

SAFETY HAZARDS ENCOUNTERED

REFERENCE TO FIELD BROOK RECORD

FIELD BOOK NO.

PAGE NO(S).

DAILY LOG OF CONSTRUCTION						REPORT NUMBER = 14	
TO: MR. JAMES LEONARD						DATE 29 NOV 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DADM33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. NO WORK PERFORMED.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

ACCIDENTS AND CAUSE

SAFETY HAZARDS ENCOUNTERED

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER DT 15	
TO: MR. JAMES LEONARD						DATE 2 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACP33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW WINDY 30'SF MORNING RAIN	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1600	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
						RIVER STAGE	
M							

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. BEGAN DEVELOPMENT OF RELIEF WELL RW-2.
 - 1) FLUSHED CLEAN WATER THROUGH WELL AND GRAVEL PACK.
 - 2) PERFORMED JETTING FOR 15 FT LENGTH OF SCREEN AND REMOVED SAND FROM WELL.
 - 3) DEVELOPMENT TIME = 3.25 HRS.

REMARKS

1. DICK SULLIVAN (R.E. CHAPMAN) ON SITE APPROX. 1.5 HRS TO OBTAIN INFORMATION FOR PUMP TESTS. DRILLERS RAN A $\frac{1}{2}$ HR. PUMP TEST WITH A PORTABLE PUMP TO ESTIMATE BEHAVIOR OF RELIEF WELL RW-1.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. DIFFICULTY GETTING AUXILIARY PUMP STARTED -
AIR IN LINE.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 16	
						DATE 3 DEC 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DOCW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH SUNNY & 20'S F WINDY	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1630	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
2						3	M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-2.
 - 1) PERFORMED JETTING FOR 45 FT LENGTH OF WELL SCREEN AND REMOVED SAND (GRAVEL PACK) COLLECTED IN BOTTOM OF WELL.
 - 2) DEVELOPMENT TIME = 9.0 HRS
CUMULATIVE DEV. TIME = 12.25 HRS

REMARKS

1. TIM BEAUCHEMIN AND PAUL L'HEUREUX (NED-USCE) VISITED THE SITE TO OBSERVE PROGRESS AND DISCUSS FUTURE WORK.
2. WIND-RIPPED PLASTIC COVERING OFF CONCRETE WALL.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

ZONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

- I. TIM BEAUCHEMIN GAVE CONTRACTOR APPROVAL TO USE MATERIAL EXCAVATED FROM EXISTING DIKE FOR IMPERVIOUS FILL.

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 17	
TO: MR. JAMES LEONARD						DATE 4 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER HIGH ZO'S F PARTY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1600	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-2. 1) PERFORMED JETTING FOR 45 FT LENGTH OF WELL SCREEN AND REMOVED SAND (GRAVEL PACK) COLLECTED IN BOTTOM OF WELL. 2) DEVELOPMENT TIME = 7.5 HRS. TOTAL DEV. TIME = 19.75 HRS.							
2. WELDED ADDITIONAL RISER ON RW-2 TO EXTEND THE WELL 3.5' ABOVE GROUND SURFACE AND WELDED FLANGE ON TOP OF RISER. INSTALLED PAY LENGTH = 53.5 FT.							
3. REMOVED FORMS FROM CONCRETE WALL.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. DIFFICULTY GETTING PUMPS STARTED - FROZEN.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 3
						DATE 5 DEC 85
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACLW33-85-B-0029
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER MID 20'S F CLOUDY
CONTRACTOR (Or hired labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1630
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE
SUPERVISORY	OFFICE 3	LAYOUT	INSPECTION 1	TOTAL 4	LABOR	FEET TIME M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. SET DRILL RIG UP ON RELIEF WELL RW-3 AND ADVANCED A 23" DIA. HOLE TO A DEPTH OF 17 FT.
2. FINISHED REMOVING FORMS FROM CONCRETE WALL. PAY VOLUME FOR CONCRETE WALL \approx 48.7 cu. yd.
3. PLACED AND COMPACTED PERVERIOUS FILL ON BATTERED SIDE OF CONCRETE WALL.

REMARKS

1. JOHN SUJAT (NED-LISLE, WESTERN RESIDENT OFFICE) VISITED THE SITE.
2. TIM BEAUCHEMIN AND PAUL L'HEUREUX (NED-USCE) VISITED SITE.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR • INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NO. 9	
						DATE 6 DEC 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH SNOW IN 20°F MORNING	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1430	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED 23" DIA. HOLE FOR RELIEF WELL RW-3 FROM 17 FT TO 44 FT DEPTH.</p> <p>2. PLACED AND COMPACTED IMPERVIOUS FILL ON VERTICAL SIDE OF CONCRETE WALL. FROZEN GROUND WAS STRIPPED BEFORE PLACING FILL.</p> <p>---</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

Noné

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER <u>20</u>	
						DATE <u>9 DEC 85</u>	
TO: MR. JAMES LEONARD						CONTRACT NUMBER <u>DALW33-85-B-0029</u>	
PROJECT <u>TOWNSHEND LAKE, VERMONT</u>						WEATHER LOW 30'S F SUNNY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						SHIFT <u>0700 - 1330</u>	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. COMPLETED DRILLING HOLE FOR RELIEF WELL RW-3 TO A DEPTH OF 55 FT.							
<u>REMARKS</u>							
1. WORK ENDED EARLY TODAY, BECAUSE A WHOLE DAY IS REQUIRED TO INSTALL WELL AND PLACE GRAVEL PACK AROUND IT.							
TITLE <u>GEOTECHNICAL ENGINEER</u>				SIGNATURE <u>Charles R. Conlon</u>			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER Z1	
TO: MR. JAMES LEONARD.						DATE 10 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER MID 30's F SUNNY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						SHIFT 0700-1630	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-1. LENGTH OF WELL SCREEN = 44.75 FT. LENGTH OF RISER = 10.2 FT.
2. PLACED GRAVEL PACK IN RELIEF WELL RW-1.
3. WIDENED EXCAVATION ON BATTERED SIDE OF CONCRETE WALL FOR PLACEMENT OF STONE PROTECTION.
4. EXCAVATED A TEST PIT APPROX. 25 FT DOWNSTREAM OF RELIEF WELL RW-8 LOCATION TO DETERMINE DEPTH OF ROCKFILL. ROCKFILL EXTENDED 6 TO 7 FT BELOW GROUND SURFACE.

REMARKS

1. JIM LEONARD AND CHARLIE MILLER (NED-USCE) VISITED SITE TO OBSERVE WORK PROGRESS AND DISCUSS CLEAN UP OF SEEPAGE POOL AND LOCATION CHANGE FOR RELIEF WELLS RW-5 THROUGH RW-9.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
--------------------------------	--------------------------------

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately.)

None

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

JIM LEONARD GAVE THE CONTRACTOR THE FOLLOWING INSTRUCTIONS:

- 1) NED-CE WILL EVALUATE CONDITIONS IN TEST PITS TO DETERMINE IF WELL RW-5 THROUGH RW-9 LOCATIONS SHOULD BE MOVED DOWNSTREAM TO AVOID ROCKFILL.
 - 2) CLEAN UP OF THE SEEPAGE POOL WILL REQUIRE REMOVING ONLY RUST STAINED WEEDS.

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 22	
TO: MR. JAMES LEONARD						DATE 11 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DAGW 33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING						WEATHER LOW 30's F SNOWED	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1630	
						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Performed</u>							
<p>1. BEGAN DEVELOPMENT OF RELIEF WELL RW-3.</p> <ol style="list-style-type: none"> 1) FLUSHED CLEAN WATER THROUGH WELL AND GRAVEL PACK. 2) PERFORMED JETTING FOR 45 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL. 3) DEVELOPMENT TIME = .8.0 HRS. <p>2. PLACED AND COMPACTED IMPERVIOUS FILL TO CONNECT EXISTING DIKE TO CONCRETE WALL. PLACED GRAVEL BEDDING AND STONE PROTECTION ON DOWNSTREAM SIDE OF EXISTING DIKE.</p> <p>3. EXCAVATED A TEST PIT NEAR PLANNED WELL RW-6 LOCATION TO DETERMINE IF IT COULD BE LEFT IN ITS PLANNED LOCATION. ONLY A FEW BOULDERS WERE ENCOUNTERED TO A DEPTH OF 8 FT.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

CHARLIE MILLER GAVE THE CONTRACTOR THE FOLLOWING INSTRUCTIONS BASED ON YESTERDAY AND TODAY'S TEST PITS:

- 1) RELIEF WELLS RW-8 AND RW-9 ARE TO BE RELOCATED 20FT DOWNSTREAM OF THEIR PLANNED LOCATION.

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.			PAGE NO(S).				
CONTRACTOR'S PLANT					CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		0700	1630				
	DRILL RIG	0700	1630	9.5	2	WELL DRILLERS	19
	SUPPLY TRUCK	0700	1630	9.5			
	DOZER	0700	1630	9.5	1	LABORER	8.0
	PUMP	0700	1630	9.5	1	BACKHOE OPERATOR	8.0
					1	SUPERINTENDENT	8.0
	BACKHOE			0			
	LOADER/BACKHOE COMBO	0800	1600	7.5			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 23
							DATE 12 DEC 85
TO: MR. JAMES. LEONARD							CONTRACT NUMBER DACW33-85-B-0029
PROJECT TOWNSHEND LAKE, VERMONT							WEATHER MID 30's F CLOUDY
CONTRACTOR (Or hired labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.							SHIFT 0700 - 1600
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Performed</u>							
<p>1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-3.</p> <p>1) PERFORMED JETTING FOR 45 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 8.0 HRS TOTAL DEVELOPMENT TIME = 16.0 HRS.</p> <p>2. PLACED STONE PROTECTION ON BATTERED SIDE OF CONCRETE WALL.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. BROKE A HYDRAULIC HOSE ON BACKHOE AT END OF DAY.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

1. CHARLIE MILLER INSTRUCTED THE CONTRACTOR TO EXCAVATE TEST PITS NEAR RELIEF WELLS RW-5 AND RW-7 TO DETERMINE IF WELLS CAN BE DRILLED IN THOSE LOCATIONS.

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		0700	1600				
	DRILL RIG	0700	1600	8.5	2	WELL DRILLERS	17
	SUPPLY TRUCK	0700	1600	8.5			
	DOZER	0700	1600	8.5	1	LABORER	7.5
	PUMP	0700	1600	8.5	1	BACKHOE OPERATOR	7.5
	BACKHOE			0			
	LOADER/BACKHOE COMBO	0800	1500				

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 24	
TO: MR. JAMES LEONARD						DATE 13 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER HIGH SNOW 20'S F AFTERNOON	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1330	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
RIVER STAGE M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. WELDED ADDITIONAL RISER AND FLANGE ON RW-3 TO EXTEND THE WELL 3.5' ABOVE GROUND SURFACE. INSTALLED PAY LENGTH = 52.5 FT</p>							
<p>2. SET DRILL RIG UP ON RELIEF WELL RW-4</p>							
<p>3. EXCAVATED TEST PITS NEAR PLANNED LOCATIONS OF WELLS RW-5 AND RW-7 TO DETERMINE IF THEY COULD BE LEFT IN THEIR PLANNED LOCATIONS. OCCASIONAL COBBLES WERE ENCOUNTERED IN THE UPPER 2 FT NEAR RW-5. FREQUENT COBBLES WERE ENCOUNTERED TO THE BOTTOM OF THE EXCAVATION (APPROX. 7 FT) NEAR RW-7.</p>							
<p>4. SITE GRADING IN THE VICINITY OF CONCRETE WALL.</p>							
TITLE: GEOTECHNICAL ENGINEER		SIGNATURE Charles R. Conlon					

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

I. REPAIRED HOSE ON BACKHOE.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 25	
TO: MR. JAMES LEONARD						DATE 16 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER LOW CLOUDY 30'S F WINDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1600	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
	5		1	6			M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. ADVANCED 23" Dia HOLE FOR RELIEF WELL RW-4 TO A DEPTH OF 30.5 FT.

REMARKS

1. ON SITE TO OBSERVE WORK PROGRESS AND DISCUSS CHANGES OF WORK WERE THE FOLLOWING:

CHARLIE MILLER (NED-USCE)

JOHN HART (NED-USCE)

TIM BEACHEMEN (NED-USCE)

ART WALZ (USCE-WASHINGTON, D.C.)

PETE HART (USCE-WASHINGTON, D.C.)

TITLE

GEOTECHNICAL ENGINEER

SIGNATURE

Charles R. Conlon

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

JOHN HART GAVE THE CONTRACTOR THE FOLLOWING INSTRUCTIONS:

- 1) RELIEF WELLS RW-5 AND RW-6 WILL REMAIN IN THEIR PLANNED LOCATIONS. RELIEF WELL RW-7 WILL BE RELOCATED 20 FT DOWNSTREAM OF ITS PLANNED LOCATION AND WILL CONNECT TO THE COLLECTOR PIPE FROM THE MANHOLE.
- 2) CAN USE A SLURRY PIT INSTEAD OF MUD TUB TO DRILL RELIEF WELLS RW-5 THROUGH RW-9.

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).					
CONTRACTOR'S PLANT					CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1600	9.0	2	WELL DRILLERS	18.0
	SUPPLY TRUCK	0700	1600	9.0			
	DOZER	0700	1600	9.0	1	BACKHOE OPERATOR	7.5
	PUMP	0700	1600	9.0	1	SUPERINTENDENT	7.5
				0			
	BACKHOE						
	FRONT LOADER	0830	1500	6.0			

DAILY LOG OF CONSTRUCTION						REPORT NO. 26	
TO: MR. JAMES LEONARD						DATE 17 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DWCW33-85-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER MID 20's F PARTLY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1615	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE 4	LAYOUT	INSPECTION 1	TOTAL 5	LABOR	FEET	TIME M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. COMPLETED ADVANCING 23" DIA HOLE FOR RELIEF WELL RW-4 TO A DEPTH OF 54 FT.							
2. PERFORMED PUMPING TEST ON RELIEF WELL RW-1. PUMPING TIME = 6.0 HRS FLOW = 216 GPM DRAWDOWN = 18.8 FT							
<u>REMARKS.</u>							
1. ON SITE TODAY TO OBSERVE WORK: JOHN HART (NED-USCE) TIM BEAUCHEMIN (NED-USCE) ART WALZ (USCE - WASHINGTON, DC) PETE HART (LISCE - WASHINGTON, DC)							
TITLE GEOTECHNICAL ENGINEER.				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, morolish, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).					
CONTRACTOR'S PLANT					CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1515	8.25	2	WELL DRILLERS	16.5
	SUPPLY TRUCK	0700	1515	8.25			
	DOZER	0700	1515	8.25	1	PUMP OPERATOR	9.25
	PUMP	0700	1515	8.25			
	BACKHOE			0			
	FRONT LOADER			0			
	SUBMERSIBLE PUMP	1000	1600	6.0			
	GENERATOR	1000	1600	6.0			

DAILY LOG OF CONSTRUCTION							REF ID: L-18-18 -7
TO: MR. JAMES LEONARD							DATE 18 DEC 85
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DALW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.							WEATHER HIGH 10°F MOSTLY CLOUDY
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1615
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	TEMPERATURE.
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE 2	LAYOUT	INSPECTION 1	TOTAL 3	LABOR	FEET	TIME M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-4. LENGTH OF WELL SCREEN = 42.75 FT. LENGTH OF RISER = 11.7 FT. PLACED GRAVEL PACK IN RELIEF WELL RW-4. PERFORMED PUMPING TEST ON RELIEF WELL RW-2. PUMPING TIME = 6.0 HRS FLOW = 200 GPM DRAWDOWN = 12.9 FT 							
<u>REMARKS</u>							
<ol style="list-style-type: none"> JOHN HART AND TIM BEAUCHEMIN VISITED THE SITE TO OBSERVE WORK. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE.

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).					
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		0700	1545				
	DRILL RIG	0700	1545	8.75	2	WELL DRILLERS	17.5
	SUPPLY TRUCK	0700	1545	8.75			
	DOZER	0700	1545	8.75	1	PUMP OPERATOR	9.25
	PUMP	0700	1545	8.75			
	SUBMERSIBLE PUMP	0700	1600	9.0			
	GENERATOR	0700	1600	9.0			
	BACKHOE						
	FRONT LOADER						

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 28	
TO: MR. JAMES LEONARD						DATE 19 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER 0-15°F SUNNY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Preformed</u>							
<ol style="list-style-type: none"> 1. EMPTIED FROZEN MATERIALS FROM MUD TUB. 2. STOCKPILED UNUSED RISER PIPE. 3. PERFORMED GENERAL MAINTAINENCE ON DRILL RIG. 4. TOOK PUMP MOUNTED ON DRILL RIG APART TO DETERMINE IF THERE IS A PROBLEM WITH IT.. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

I. DEVELOPMENT OF RELIEF WELL RW-4 WAS NOT
BEGUN TODAY BECAUSE OF THE VERY LOW
TEMPERATURE.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).					
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG			0	2	WELL DRILLERS	16.0
	SUPPLY TRUCK			0			
	DOZER	0700	1200	5.0			
	PUMP	0800	0900	1.0			
	BACK HOE			0			
	FRONT LOADER			0			
	SUBMERSIBLE PUMP			0			
	GENERATOR			0			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 20
TO: MR. JAMES LEONARD							DATE 20 DEC 85
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DACLW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.							WEATHER HIGH SUNNY 10'S F
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1145
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE			TEMPERATURE
							MINIMUM MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. REPAIRED PUMP MOUNTED ON DRILL RIG. A CAST IRON PART FOUND DEFECTIVE HAD TO BE TAKEN BACK TO THE SHOP FOR WELDING.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately.)

1. DRILL RIG MOUNTED PUMP REPAIRED.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT		CONTRACTOR'S LABOR			
PLANT NO...	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION
	DRILL RIG	0700 1130	4.5	2	WELL DRILLERS
	SUPPLY TRUCK		0		
	DOZER	0700 0900	2.0	1	MECHANIC
	PUMP		0		
	BACKHOE		0		
	FRONT LOADER		0		
	SUBMERSIBLE PUMP		0		
	GENERATOR		0		

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 30	
TO: MR. JAMES LEONARD						DATE 23 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DALW 33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E.CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC						WEATHER LOW CLOUDY 30's F	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0730 - 1700	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		TEMPERATURE.	
8	8	8	8	8	8		
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	
			1	1		H	
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. FINISHED REPAIRING PUMP MOUNTED ON DRILL RIG.							
2. BEGAN DEVELOPMENT OF RELIEF WELL RW-4.							
1) FLUSHED CLEAR WATER THROUGH WELL AND GRAVEL PACK.							
2) PERFORMED JETTING FOR 43 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.							
3) DEVELOPMENT TIME = 6.0 HRS							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. PUT CAST IRON PIECE BACK IN PLIMP THAT HAD TO BE TAKEN TO THE SHOP LAST FRIDAY FOR WELDING.
2. BROKE AND REPLACED OIL LINE ON GENERATOR.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0730	1700	9.5	2	WELL DRILLERS
	SUPPLY TRUCK	0730	1700	9.5		
	DOZER	0730	1700	9.5		
	PUMP			0		
	SUBMERSIBLE PUMP	1000	1700	7.0		
	GENERATOR	1000	1700	7.0		
	FRONT LOADER			0		
	BACKHOE			0		

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 51	
						DATE 24 DEC 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DAGW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH CLOUDY 30'S F	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						SHIFT 0700 - 0945	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-4.</p> <p>1) PERFORMED JETTING FOR 43 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 2.75 HRS CUMULATIVE DEV. TIME = 8.75 HRS</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately).

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END			
	DRILL RIG	0700	0945	2.75	2	WELL DRILLERS
	SUPPLY TRUCK	0700	0945	2.75		
	DOZER	0700	0945	2.75		
	Pump			0		
	SUBMERSIBLE PUMP	0700	0945	2.75		
	GENERATOR	0700	0945	2.75		
	FRONT LOADER			0		
	BACKHOE			0		

DAILY LOG OF CONSTRUCTION						REPORT NO. E- 32	
TO: MR. JAMES LEONARD						DATE 25 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DOLW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER NONE	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
I. NO WORK PERFORMED - HOLIDAY.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

ACCIDENTS AND CAUSE

SAFETY HAZARDS ENCOUNTERED

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT

CONTRACTOR'S LABOR

PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG			0			
	SUPPLY TRUCK			0			
	DOZER			0			
	PLIMP			0			
	SUBMERSIBLE PUMP			0			
	GENERATOR			0			
	FRONT LOADER			0			
	BACICHIE			0			

DAILY LOG OF CONSTRUCTION						REPORT NO. 33	
TO: MR. JAMES LEONARD						DATE 26 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER Sunny To Partly Cloudy	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1645	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM 0	MAXIMUM 15
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Performed</u>							
<ol style="list-style-type: none"> 1. Thawed equipment 2. Completed Development of Relief Well RW-4 <ol style="list-style-type: none"> 1) Performed jetting for 43 ft. length of well screen and removed sand from well. 2) Development Time = 8.0 hrs Total Development Time = 16.75 hrs 							
TITLE Geotechnical Engineer				SIGNATURE Michael A. McCaffrey			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

Thawed water lines, pumps, and connections.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

After removing sand from inside well tomorrow move to RW-5. Jetting at RW-4 completed

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).					
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1645	9.75	2	WELL DRILLERS	19.5
	SUPPLY TRUCK			0			
	DOZER	1000	1130	1.5	1	Supply Deliveries	1.5
	PUMP			0			
	SUBMERSIBLE PUMP	0700	1630	9.5			
	GENERATOR	0700	1630	9.5			
	FRONT LOADER			0			
	BACKHOE			0			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 34
TO: Mr. James Leonard							DATE 27 Dec 85
PROJECT Townshend Lake, Vermont							CONTRACT NUMBER DA CW 33-85-B-0027
CONTRACTOR (Or hired labor) Relief Wells - R.E. Chapman Co. General - Carroll Excavating Inc.							WEATHER Snow 10 - 20°F
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1400
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	TEMPERATURE.
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
			1	1			M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Performed</u>							
<ol style="list-style-type: none"> Removed sand from inside well at RW-4 Welded flange plate to riser pipe of RW-4 Moved from RW-4 to RW-5. Buckhoe excavated hole for drilling fluid storage and recycling at RW-5. No Drilling performed today. 							
TITLE Geotechnical Engineer				SIGNATURE Michael A McCaffrey			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

RW-4 adequately developed, move
to RW-5.

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	Drill Rig	0730	1330	6	2	Well Drillers	14
	Supply Truck			0	2	Contractor (Carroll)	4
	Dozer	0930	1000	0.5			
	Pump			0			
	Submersible Pump			0			
	Generator			0			
	Front Loader			0			
	Backhoe	1100	1300	2			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 35	
						DATE 30 Dec 85	
TO: Mr. James Leonard						CONTRACT NUMBER DACW 33-85-B-0029	
PROJECT Townshend Lake, Vermont						WEATHER Partly Sunny 10-20°F	
CONTRACTOR (Or hired labor) Relief Walls - N.E. Chapman Co. General - Carroll Excavating Inc.						SHIFT 0700-1600	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>Work Performed</u>							
<ol style="list-style-type: none"> 1. Mixed Revert drilling fluid 2. Started drilling at RW-5. Drilled from 0 to 40 ft. 							
TITLE Geotechnical Engineer				SIGNATURE <i>Michael A. McCaffrey</i>			

DIFFICULTIES ENCOUNTERED AND DELAYS (ACCOUNT FOR EACH HOLE, MONITOR, ETC., SEPARATELY)

None

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	Drill Rig	0700 1545	8.75	2	Well Drillers	18
	Supply Truck		0			-
	Dozer	0930 1000	0.5			
	Pump		0			
	Submersible Pump	1535 1540	0.1			
	Generator	1535 1540	0.1			
	Front Loader		0			
	Backhoe		0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER <u>36</u>	
TO: MR. JAMES LEONARD						DATE 31 DEC 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DAGW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS- R.E. CHAPMAN CO GENERAL - CARROLL EXCAVATING INC.						WEATHER LOW ZO'S F PARTLY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1200 TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	%	MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. COMPLETED ADVANCING 23" DIA. HOLE FOR RELIEF WELL RW-5 TO A DEPTH OF 54 FT.</p> <p>2. RELIEF WELL RW-5 INSTALLED PAY LENGTH = 52.0 FT.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

I. THAWED HOSES, PUMPS AND CONNECTIONS:

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END				
	DRILL RIG	0700	1200	5.0	2	WELL DRILLERS	10.0
	SUPPLY TRUCK			0			
	DOZER			0	1	SUPERINTENDENT	1.5
	PUMP			0			
	SUBMERSIBLE PUMP	0730	0800	0.5			
	GENERATOR	0730	0800	0.5			
	FRONT LOADER			0			
	BACKHOE			0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 37	
TO: MR. JAMES LEONARD						DATE 1 JAN 86	
PROJECT						CONTRACT NUMBER Da CW33-85-B-0029	
TOWNS END LAKE, VERMONT						WEATHER	
CONTRACTOR (Or hired labor)						SHIFT NONE	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM.	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. No WORK PERFORMED - HOLIDAY.							
TITLE				SIGNATURE			
GEOTECHNICAL ENGINEER				Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

INSTRUCTIONS GIVEN TO CONTRACTOR • INFORMATION RECEIVED FROM CONTRACTOR

ACCIDENTS AND CAUSE

SAFETY HAZARDS ENCOUNTERED

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT		CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION
	DRILL RIG		0		
	SUPPLY TRUCK		0		
	DOZER		0		
	PUMP		0		
	SUBMERSIBLE PUMP		0		
	GENERATOR		0		
	FRONT LOADER		0		
	BACK HOE		0		

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 38	
							DATE 2 Jan 86	
TO: MR. JAMES LEONARD							CONTRACT NUMBER DACW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT							WEATHER HIGH 20'S F PARTLY CLOUDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							SHIFT 0700 - 1615	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE			MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME	M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)								
INCLUDE UNDER REMARKS. (Material, visitors, etc.)								
<u>Work PERFORMED</u>								
<p>1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-5. LENGTH OF WELL SCREEN = 40.5 FT. LENGTH OF RISER = 13.3 FT.</p> <p>2. PLACED GRAVEL PACK IN RELIEF WELL RW-5.</p>								
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon				

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1615	9.25	2	WELL DRILLERS	18.5
	SUPPLY TRUCK		0			
	DOZER	0700 1615	9.25			
	SUBMERSIBLE PUMP		0			
	GENERATOR		0			
	FRONT LOADER		0			
	BACK HOE		0			

DAILY LOG OF CONSTRUCTION						- EDITION NUMBER 39	
						DATE 3 JAN 86	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DAGW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER FREEZING RAIN LOW 30'S F AND HEAVY SNOW	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1100	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. BEGAN DEVELOPMENT OF RELIEF WELL RW-5.
 - 1) FLUSHED CLEAR WATER THROUGH WELL AND GRAVEL PACK.
 - 2) PERFORMED JETTING FOR 40 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.
 - 3) DEVELOPMENT TIME = 3.5 HRS

REMARKS

1. UNLOADED PRECAST CONCRETE COLLECTOR PIPE AND MANHOLE AT SITE.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
--------------------------------	--------------------------------

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

QUIT EARLY BECAUSE OF THE SNOW.

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1100	4.0	2	WELL DRILLERS
	SUPPLY TRUCK			0		
	DOZER			0	1	BACKHOE OPERATOR
				1		LABORER
	SUBMERSIBLE PUMP	0730	1100	3.5		
	GENERATOR	0730	1100	3.5		
	FRONT LOADER	0900	1100	2.0*		
	BACKHOE			0		

* APPROX. NO. OF HOURS

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 40	
TO: MR. JAMES LEONARD						DATE 6 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACLW33-B5-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER HIGH 20'S F MOSTLY CLOUDY GLISTENING WIND	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1630	
						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. CONTINUED DEVELOPMENT FOR RELIEF WELL RW-5.							
1) PERFORMED JETTING FOR 40 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.							
2) DEVELOPMENT TIME = 8.5 HRS CUMULATIVE DEV. TIME = 12.0 HRS							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. ONE FOOT OF SNOW COVERING THE GROUND HAD TO BE CLEARED FROM ACCESS ROAD AND EQUIPMENT

INSTRUCTIONS GIVEN TO CONTRACTOR • INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE.

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0800	1630	8.5	2	WELL DRILLERS	19.0
	SUPPLY TRUCK			0			
	DOZER	0800	1200	4.0	1	LABORER	7.5*
	SUBMERSIBLE PUMP	0900	1630	7.5			
	GENERATOR	0900	1630	7.5			
	FRONT LOADER	0700	0800	1.0			
	BACKHOE			0			

* APPROX. NO. OF HOURS

DAILY LOG OF CONSTRUCTION						REPORT NO. 41	
						DATE 7 JAN 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DAGW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER MID 10'S F SUNNY	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1645	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. COMPLETED DEVELOPMENT FOR RELIEF WELL RW-5.
 - 1) PERFORMED JETTING FOR 40 FT LENGTH OF WELL AND REMOVED SAND FROM WELL.
 - 2) DEVELOPMENT TIME = 4.0 HRS
TOTAL DEV. TIME = 16.0 HRS
2. WELDED ADDITIONAL RISER AND FLANGE ON RW-5 TO EXTEND THE WELL 3.5 FT ABOVE GROUND SURFACE. INSTALLED PAY LENGTH = 51.3 FT.
3. SET UP DRILL RIG ON RELIEF WELL RW-6.
4. SET SUBMERSIBLE PUMP IN RELIEF WELL RW-3 FOR PUMPING TEST.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
--------------------------------	--------------------------------

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. BACKHOE BROKE DOWN - NOT ABLE TO EXCAVATE
SLURRY PIT FOR RW-6.

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1645	9.25	2	WELL DRILLERS	18.5
	SUPPLY TRUCK		0			
	DOZER	1200 1600	4.0	1	LABORER	8.5
	SUBMERSIBLE PUMP	0700 1100	4.0			
	GENERATOR	0700 1100	4.0	1	PUMP OPERATOR	4.5
	FRONT LOADER	1300 1330	0.5			
	BACKHOE	1500 1600	1.0			

DAILY LOG OF CONSTRUCTION						EFGC 2-12	
						DATE 8 JAN 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACLW 33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER LOW 10°F SUNNY AND WINDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						SHIFT 0700 - 1500	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM -5°F	MAXIMUM 20°F
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. EXCAVATED SLURRY PIT FOR RELIEF WELL RW-6.
2. PERFORMED PUMPING TEST ON RELIEF WELL RW-3.
 PUMPING TIME = 6.0 HRS
 FLOW = 200 GAL/MIN.
 DRAWDOWN = 28.8 FT
3. SET SUBMERSIBLE PUMP IN RELIEF WELL RW-4
 FOR PUMPING TEST.

REMARKS

- 1. NO DRILLING WAS PERFORMED BECAUSE OF THE VERY LOW TEMPERATURES FOR MOST OF THE DAY.

TITLE GEOTECHNICAL ENGINEER		SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. REPAIRED BACKHOE THIS MORNING.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
DRILL RIG			0	2	WELL DRILLERS	15.0
SUPPLY TRUCK			0			
DOZER	0700	1500	7.5	1	PUMP OPERATOR	7.5
SUBMERSIBLE PUMP	0715	1315	6.0			
GENERATOR	0715	1315	6.0	2	BACKHOE OPERATORS	8.0*
				1	SUPERINTENDENT	2.0
FRONT LOADER			0			
BACKHOE	0800	1000	2.0			

* APPROX. NO. OF HOURS

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 43	
TO: MR. JAMES LEONARD						DATE 9 JAN 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACLW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER MID 30'S F SUNNY AND SLIGHTLY WINDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1600	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED 23 IN. DIA. HOLE FOR RELIEF WELL RW-6 TO A DEPTH OF 52 FT.</p> <p>2. PERFORMED PUMPING TEST ON RELIEF WELL RW-4. PUMPING TIME = 6.0 HRS FLOW = 204 GAL/MIN DRAWDOWN = 17.5 FT</p> <p>3. SET SUBMERSIBLE PUMP IN RELIEF WELL RW-5 FOR PUMPING TEST,</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR - **INFORMATION RECEIVED FROM CONTRACTOR**

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 24	
TO: MR. JAMES LEONARD						DATE 10 JAN 85	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACP33-85-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER MID 30'SF MOSTLY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0500 - 1400	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
RIVER STAGE							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-6. LENGTH OF WELL SCREEN = 35.5 FT. LENGTH OF RISER = 15.9 FT</p> <p>2. PERFORMED PUMPING TEST ON RELIEF WELL RW-5 PUMPING TIME = 6.0 HRS FLOW = 210 GAL/MIN DRAWDOWN = 27.5 FT</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1400	7.0	2	WELL DRILLERS	14.0
	SUPPLY TRUCK		0			
	DOZER	1200 1400	2.0	1	PUMP OPERATOR	9.0
	SUBMERSIBLE PUMP	0550 1150	6.0			
	GENERATOR	0530 1200	6.5			
	FRONT LOADER		0			
	BACKHOE		0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 45	
						DATE 13 JAN 85	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DACW33-85-B-0029	
PROJECT TOWNSEND LAKE, VERMONT						WEATHER HIGH 30'S F MOSTLY CLOUDY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1645	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL 2	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. BEGAN DEVELOPMENT OF RELIEF WELL RW-6.							
1) PERFORMED JETTING FOR 35.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.							
2) DEVELOPMENT TIME = 9.0 HRS							
2. INSTALLED PRECAST CONCRETE MANHOLE AND ONE EIGHT-FT. SECTION OF 18 IN. Dia. PRECAST CONCRETE COLLECTOR PIPE SOUTH OF THE MANHOLE.							
<u>REMARKS</u>							
1. CHARLIE MILLER (NED-USCE) VISITED SITE TO OBSERVE WORK PROGRESS.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).						
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS	
		0700	1630					
	DRILL RIG	0700	1630	9.5	2	WELL DRILLERS	19	
	SUPPLY TRUCK		0					
	DOZER	1200	1300	1.0	2	LABORERS	18.5	
	SUBMERSIBLE PUMP	0730	1600	8.5	2	MACHINE OPERATORS	18.5	
	GENERATOR	0730	1600	8.5	1	SUPERINTENDENT	9.25	
	FRONT LOADER	0700	1645	9.75				
	BACKHOE	0800	1645	8.75				

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 46
						DATE 14 JAN 86
TO: MR. JAMES LEONARD •						CONTRACT NUMBER DACLW33-85-B-0029
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER CLOUDY AND SLIGHTLY WINDY 0-10°F
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1630
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL 2	LABOR	FEET
						TIME M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-6.
 - 1) PERFORMED JETTING FOR 35.5 FT LENGTH OF WELL. SCREEN AND REMOVED SAND FROM WELL.
 - 2) DEVELOPMENT TIME = 5.0 HRS

TOTAL DEV. TIME = 14.0 HRS
2. INSTALLED 6 EIGHT-FT SECTIONS OF 18 IN DIA PRECAST CONCRETE -COLLECTOR PIPE SOUTH OF THE MANHOLE.
3. SET DRILL RIG UP ON RELIEF WELL RW-9 AND EXCAVATED A SLURRY PIT.

REMARKS

1. PAUL L'HEUREUX (NED-USCE) VISITED SITE.

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

I. THAW OUT PUMP AND OTHER EQUIPMENT.

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END				
	DRILL RIG	0700	1600	8.5	2	WELL DRILLERS	18.0
	SUPPLY TRUCK			0			
	DOZER	1400	1500	1.0	2	LABORERS	18.0
	SUBMERSIBLE PUMP	0730	1200	4.5	2	MACHINE OPERATORS	18.0
	GENERATOR	0700	1200	5.0	1	SUPERINTENDENT	9.0
	FRONT LOADER	0700	1630	9.0			
	BACKHOE	0700	1630	9.0			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER <u>47</u>	
							DATE 15 JAN 86	
TO: MR. JAMES LEONARD							CONTRACT NUMBER DACP33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT							WEATHER WINDY AND 0°F SUNNY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							SHIFT 0700 - 1000	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE			MINIMUM -5°F	MAXIMUM 5°F
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME	
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)								
<u>WORK PERFORMED</u>								
1. NO WORK WAS PERFORMED - VERY LOW TEMPERATURE.								
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon				

DIFFICULTIES ENCOUNTERED AND DELAYS (account for each hole, monolith, etc., separately)

1. NO WORK WAS PERFORMED BECAUSE OF THE
VERY LOW TEMPERATURE.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG			0	2	WELL DRILLERS
	SUPPLY TRUCK			0		
	DOZER			0		
	SUBMERSIBLE PUMP			0		
	GENERATOR			0		
	FRONT LOADER			0		
	BALKHOE			0		

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 43
TO: MR. JAMES. LEONARD							DATE 16 JAN 86
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DACW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							WEATHER LOW 20's F SUNNY
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1630
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	TEMPERATURE.
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. ADVANCED A 23 IN. DIA. HOLE FOR RELIEF WELL RW-9 TO A DEPTH OF 20 FT.							
2. INSTALLED 13 EIGHT-FT SECTIONS OF 18 IN. DIA. PRECAST CONCRETE COLLECTOR PIPE SOUTH OF THE MANHOLE.							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. THAWED PUMP AND OTHER EQUIPMENT.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1630	9.5	2	WELL DRILLERS	19.0
	SUPPLY TRUCK			0			
	DOZER	1300	1600	3.0	2	LABORERS	18.0
	SUBMERSIBLE PUMP			0	2	MACHINE OPERATORS	18.0
	GENERATOR			0	1	SUPERINTENDENT	9.0
	FRONT LOADER	0700	1630	9.0			
	BACKHOE	0700	1630	9.0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 49	
TO: MR. JAMES LEONARD						DATE 17 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER HIGH 20'S F PARTLY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1530*	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED A 23 IN. DIA. HOLE FOR RELIEF WELL RW-9 FROM A DEPTH OF 20 FT TO 48 FT.</p> <p>2. INSTALLED 2 EIGHT-FT SECTIONS OF 18 IN. COLLECTOR PIPE SOUTH OF THE MANHOLE, COMPLETING THE NORTH-SOUTH LINE OF COLLECTOR PIPE.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 50
TO: MR. JAMES LEONARD							DATE 20 JAN 86
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DOCW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - E.E. CHAPMAN CO. GENERAL - CARROL EXCAVATING, INC.							WEATHER HIGH 30'S F CONSTANT LIGHT RAIN
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE.
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							TIME M
<u>WORK PERFORMED</u>							
<p>1. NO WORK PERFORMED - UNABLE TO WELD IN RAIN BECAUSE OF ELECTRICAL SHOCK AND INABILITY TO KEEP WELDING SURFACE DRY.</p> <p>2. RELIEF WELL RW-6. INSTALLED PAY LENGTH = 48.9 FT.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 5:	
TO: MR. JAMES LEONARD						DATE 21 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E.CHAPMAN CO. GENERAL - CACROLL EXCAVATING, INC.						WEATHER HIGH 30'S F	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1700	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE.	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME H
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> 1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-9. LENGTH OF WELL SCREEN = 34.5 FT. LENGTH OF RISER = 12.5 FT. INSTALLED PAY LENGTH = 45.5 FT. 2. PERFORMED GENERAL MAINTAINENCE ON DRILL RIG. 3. INSTALLED ONE EIGHT-FT SECTION OF 18 IN DIA PRECAST CONCRETE COLLECTOR PIPE EAST OF THE MANHOLE. 4. UNLOADED PRECAST CONCRETE COLLECTOR PIPE. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS. (Account for each hole, motorist, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END				
	DRILL RIG	0700	1400	6.5	2	WELL DRILLERS	18.0
	SUPPLY TRUCK			0			
	DOZER	1230	1400	1.5	1	MACHINE OPERATOR	7.5
	SUBMERSIBLE PUMP			0	2	LABORERS	15.0
	GENERATOR			0	1	SUPERINTENDENT	7.5
	BACKHOE	0900	1700	7.5			
	FRONT LOADER	0900	1700	7.5			

DAILY LOG OF CONSTRUCTION						REF ID: A42251 51	
TO: MR. JAMES LEONARD						DATE 22 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER HIGH 30'S F MOSTLY CLOUDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700-1700 TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME H

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. BEGAN DEVELOPMENT OF RELIEF WELL RW-9.
 - 1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.
 - 2) DEVELOPMENT TIME = 9.0 HRS
2. INSTALLED 10 EIGHT-FT SECTIONS OF 18 IN DIA. COLLECTOR PIPE EAST OF THE MANHOLE (5-SECTIONS FOR EACH LINE).

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
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DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR THE CONTRACTOR WAS GIVEN THE FOLLOWING INSTRUCTIONS BY NED-USCE FOR THE COLLECTOR PIPE.

- 1) USE RAMMER-TYPE COMPACTOR FOR FILL AROUND PIPE.
- 2) PERFORM FIELD DENSITY TESTS IN TRENCH BACKFILL AT FOUR LOCATIONS ALONG N-S LINE (RW-1 THROUGH RW-4). AT EACH LOCATION PERFORM ONE TEST WITHIN 1 FT OF PIPE AND ONE 2 FT ABOVE PIPE.
- 3) PERFORM TWO FIELD DENSITY TESTS AT ONE LOCATION ALONG E-W LINE

ACCIDENTS AND CAUSE	(RW-5 THROUGH RW-9) NED-USCE GAVE FOLLOWING INSTRUCTIONS FOR RELIEF WELLS
	1) DO NOT INCLUDE IMPERVIOUS FILL BACKFILL AROUND RISER PIPE. EXTEND CONCRETE PLUG DOWN 5 FT BELOW GROUND. FILL BETWEEN BOTTOM OF CONCRETE PLUG
SAFETY HAZARDS ENCOUNTERED	AND TOP OF GRAVEL PACK SHALL BE SAND.

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).						
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS	
		0700	1700					
	DRILL RIG	0700	1700	9.5	2	WELL DRILLERS	19.0	
	SUPPLY TRUCK			0				
	DOZER	0800	1700	8.5	1	MACHINE OPERATOR	9.5	
	SUBMERSIBLE PUMP	0700	1700	9.5	2	LABORERS	19.0	
	GENERATOR	0700	1700	9.5	1	SUPERINTENDENT	9.5	
	BACKHOE	0700	1700	9.5				
	FRONT LOADER	0700	1700	9.5				

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 53	
TO: MR. JAMES LEONARD						DATE 23 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW 30'S F SUNNY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1700	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-9.							
1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.							
2) DEVELOPMENT TIME = 9.0 HRS. CUMMULATIVE DEV. TIME = 18.0 HRS							
2. INSTALLED 8 EIGHT-FT SECTIONS OF 18IN. DIA. COLLECTOR PIPE EAST OF THE MANHOLE (4 SECTIONS FOR EACH LINE).							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		0700	1700				
	DRILL RIG	0700	1700	9.5	2	WELL DRILLERS	18.0
	SUPPLY TRUCK			.0			
	DOZER	0700	1700	9.5	1	MACHINE OPERATOR	9.0
	SUBMERSIBLE PUMP	0700	1700	9.5	2	LABORERS	18.0
	GENERATOR	0700	1700	9.5	1	SUPERINTENDENT	9.0
					1	MACHINE OPERATOR	4.0
	BALKHSE	0700	1630	9.0			
	FRONT LOADER	0700	1630	9.0			
	PUMP	1000	1630	6.0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 54	
TO: MR. JAMES LEONARD						DATE 24 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DAGW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW 30's F SUNNY AND WINDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1530	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-9.							
1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.							
2) DEVELOPMENT TIME = 5.5 HRS							
3) CUMULATIVE DEV. TIME = 23.5 HRS							
2. INSTALLED 8 EIGHT-FT SECTIONS OF 18IN Dia. COLLECTOR PIPE EAST OF THE MANHOLE. (4 SECTIONS FOR EACH LINE).							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT

CONTRACTOR'S LABOR

PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END				
	DRILL RIG	0700	1300	6.0	2	WELL DRILLERS	12.0
	SUPPLY TRUCK			0	-		
	DOZER			0	2	MACHINE OPERATORS	16.0
	SUBMERSIBLE PUMP	0700	1300	6.0	2	LABORERS	16.0
	GENERATOR	0700	1300	6.0	1	SUPERINTENDENT	8.0
	BACK HOE	0700	1500	7.5			
	FRONT LOADER	0700	1530	8.0			
	PUMP	0900	1500	5.5			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 55	
TO: MR. JAMES LEONARD						DATE 27 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DALW33-85-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW CLOUDY 40's	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1600	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
M							

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-9
 - 1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.
 - 2) DEVELOPMENT TIME = 8.0 HRS
TOTAL DEV. TIME = 31.5 HRS

REMARKS

1. REGARDING EARLIER WORK :
 - 1) BACKFILL FOR COLLECTOR PIPE LINE NORTH-SOUTH FROM THE MANHOLE WAS THE INSITU MATERIAL
 - 2) BACKFILL FOR COLLECTOR PIPE LINES EAST-WEST FROM THE MANHOLE WAS A STRUCTURAL FILL. CRUSHED STONE WAS PLACED BENEATH THE PIPE ON THE EAST END.

TITLE	SIGNATURE
GEOTECHNICAL ENGINEERS	Charles R. Conlon

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

1. APPROX. 6 IN. OF SNOW AND SLUSH COVERING THE GROUND HAD TO BE REMOVED FROM THE WORK AREA AND EQUIPMENT.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR NED-USCE

INSTRUCTED CONTRACTOR TO STOP JETTING AND PERFORM A PRELIMINARY PUMPING TEST TO CHECK DEVELOPMENT OF RELIEF WELL RW-9.

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1600	9.0	2	WELL DRILLERS	18.0
	SUPPLY TRUCK		0		-	
	DOZER	1400 1500	1.0			
	SUBMERSIBLE PUMP	0900 1600	7.0			
	GENERATOR	0900 1600	7.0			
	BACK HOE		0			
	FRONT LOADER		0			
	AIR COMPRESSOR		0			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER <u>56</u>
							DATE 28 JAN 86
TO: MR. JAMES LEONARD							CONTRACT NUMBER DACLW33-85-B-0029
PROJECT TOWNSHEND LAKE, VERMONT							WEATHER MID 10'S F WINDY
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							SHIFT 0700 - 1645
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							TEMPERATURE.
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
							M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<ol style="list-style-type: none"> 1. SET UP DRILL RIG ON RELIEF WELL RW-8 AND ADVANCED A 23IN DIA. HOLE TO A DEPTH OF 3 FT. 2. WELDED FLANGE ON TOP OF RELIEF WELL RW-9. 3. PERFORMED A 1HR. PRELIMINARY PUMPING TEST ON RELIEF WELL RW-9 TO CHECK ITS DEVELOPMENT. 4. BEGAN CLEAN UP OF THE SEEPAGE POOL. 5. EXCAVATED A SLURRY PIT FOR RELIEF WELL RW-8. 							
<u>REMARKS</u>							
<ol style="list-style-type: none"> 1. TIM BEAUCHEMIN (LISCE-NED) VISITED SITE TO OBSERVE WORK. 							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR : INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END			
	DRILL RIG	1000	1645	6.25	2	WELL DRILLERS
	SUPPLY TRUCK			0		
	DOZER	0800	1200	4.0	1	SUPERINTENDENT
	SUBMERSIBLE PUMP			0	2	MACHINE OPERATOR
	GENERATOR			0	1	LABORERS
	SUCTION PUMP	0900	1200	3.0		
	BACKHOE	0900	1615	6.75		
	FRONT LOADER	0730	1615	8.25		
	AIR COMPRESSOR			0		

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 57
TO: MR. JAMES LEONARD							DATE 29 JAN 86
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DACW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							WEATHER HIGH 10'S F MOSTLY CLOUDY
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1700
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM	TEMPERATURE
S	S	S	S	S			
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
			1	1			M
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED A 23 IN Dia. HOLE FOR RELIEF WELL RW-8 FROM A DEPTH OF 3 FT TO 46 FT.</p> <p>2. CORED HOLES IN CONCRETE COLLECTOR PIPE FOR RELIEF WELLS RW-1, 2, 3 AND 4.</p> <p>3. CONNECTED RELIEF WELLS RW-1 AND RW-2 TO CONCRETE COLLECTOR PIPE WITH 8 IN Dia. COAL TAR EPOXY PAINTED DUCTILE IRON PIPE AND INSTALLED CHECK VALVES. CONNECTION BETWEEN DUCTILE IRON AND CONCRETE COLLECTOR PIPE WAS GROUTED WITH A NONSHRINK GROUT. BACKFILL AROUND PIPE WAS CRUSHED STONE. ABOVE PIPE BACKFILLED HOLE WITH MATERIAL REMOVED FROM EXCAVATION.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (accounts for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1515	8.25	2	WELL DRILLERS	16.5
	SUPPLY TRUCK			0			
	DOZER			0	1	SUPERINTENDENT	9.5
	SUBMERSIBLE PUMP			0	2	MACHINE OPERATORS	19.0
	GENERATOR			0	1	LABORER	9.5
	SUCTION PUMP			2.0			
	BACKHOE	0800	1700	8.5	1	CONCRETE CUTTER	4.0
	FRONT LOADER	0700	1700	9.5			
	AIR COMPRESSOR			0			
	CONCRETE CORING BIT	1030	1430	4.0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 58	
TO: MR. JAMES LEONARD						DATE 30 JAN 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-85-B-0029	
CONTRACTOR (Or hired labor) R. RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW 30'S F MOSTLY SUNNY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1645	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						TEMPERATURE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
RIVER STAGE							
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED A 23 IN Dia. HOLE FOR RELIEF WELL RW-8 FROM 46 FT TO 48 FT.</p> <p>2. INSTALLED AND WELDED WELL SCREEN AND RISER PIPE. FOR RELIEF WELL RW-8. LENGTH OF WELL SCREEN = 34.5 FT. LENGTH OF RISER = 12.5 FT. INSTALLED PAY LENGTH = 47.4 FT (BASED ON ORIGINAL GROUND SURFACE EL 466.9 FT)</p> <p>3. CONNECTED RELIEF WELLS RW-3 AND RW-4 TO CONCRETE COLLECTOR PIPE WITH 8 IN Dia COAL TAR EPOXY PAINTED DUCTILE IRON PIPE AND INSTALLED CHECK VALVES. CONNECTION BETWEEN DUCTILE IRON AND CONCRETE COLLECTOR PIPE WAS GROUTED WITH A NONSHRINK GROUT. DUCTILE IRON PIPE CONNECTIONS WERE MADE WITH A UNIFLANGE COUPLING. BACKFILL AROUND PIPE WAS A CRUSHED STONE. ABOVE PIPE BACKFILLED HOLE WITH INSITU SOIL.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1515	8.0	2	WELL DRILLERS	16.0
	SUPPLY TRUCK		0			
	DOZER	1000 1515	5.0	1	SUPERINTENDENT	9.25
	SUBMERSIBLE PUMP		0	2	MACHINE OPERATORS	18.5
	GENERATOR		0	1	LABORER	9.25
	BACKHOE	0700 1645	9.25			
	FRONT LOADER	0700 1645	9.25			
	COMPRESSOR		0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 59	
						DATE 31 JAN 86	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DALW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER LOW 30'S F LIGHT FLURRIES	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1330	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. BEGAN DEVELOPMENT OF RELIEF WELL RW-8.
- 1) FLUSHED CLEAR WATER THROUGH WELL AND GRAVEL PACK.
- 2) PERFORMED JETTING FOR 34.5 FT OF WELL SCREEN AND REMOVED SAND FROM WELL.
- 3) DEVELOPMENT TIME = 6.5 HRS

TITLE GEOTECHNICAL ENGINEER	SIGNATURE Charles R. Conlon
--------------------------------	--------------------------------

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(5).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR				
PLANT NO.	EQUIPMENT	TIME USED		TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700	1330	6.5	2	WELL DRILLERS	13.0
	SUPPLY TRUCK			0			
	DOZER			0			
	SUBMERSIBLE PUMP	0700	1300	6.0			
	GENERATOR	0700	1300	6.0			
	BACKHOE			0			
	FRONT LOADER			0			
	COMPRESSOR			0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 60	
TO: MR. JAMES LEONARD						DATE 3 FEB 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACLW33-SS-B-0029	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER MID 30'SF SUNNY AND SLIGHTLY WINDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700- 1715	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		TEMPERATURE	
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	
						TIME	
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-8.</p> <p>1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 9.0 HRS</p> <p>CUMULATIVE DEV. TIME = 15.5 HRS</p>							
<p>2. INSTALLED 4 EIGHT-FT SECTIONS OF 18 IN. DIA. COLLECTOR PIPE EAST OF THE MANHOLE (2-SECTIONS FOR EACH LINE). EXCAVATION WAS BACKFILLED WITH STRUCTURAL FILL. THIS COMPLETES THE INSTALLATION OF 18 IN DIA CONCRETE COLLECTOR PIPE.</p>							
<p>3. POURED 5 FT CONCRETE PLUG IN RELIEF WELLS RW-1, RW-2, RW-3, AND RW-4.</p>							
<p>4. PERFORMED 8 IN-PLACE DENSITY TESTS ALONG NORTH-SOUTH LINE OF COLLECTOR PIPE AND 2 IN-PLACE DENSITY TESTS ALONG EAST-WEST LINE OF COLLECTOR PIPE.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (ACCOUNT FOR EACH HOLE, MONOLITH, ETC., SEPARATELY)

1. SIX INCHES OF SNOW COVERING ACCESS ROAD
AND EQUIPMENT.

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0730 1630	9.0	2	WELL DRILLERS	19.0
	SUPPLY TRUCK		0			
	DOZER	0700 0800	1.0	1	SUPERINTENDENT	9.25
	SUBMERSIBLE PUMP	0730 1630	9.0	2	MACHINE OPERATORS	18.5
	GENERATOR	0730 1630	9.0	1	LABORER	9.25
	BACKHOE	0730 1715	9.25			
	FRONT LOADER	0730 1715	9.25			
	COMPRESSOR		0			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 61
TO: MR. JAMES LEONARD							DATE 4 FEB 86
PROJECT TOWNSHEND LAKE, VERMONT							CONTRACT NUMBER DALW33-85-B-0029
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.							WEATHER LOW 10'SF CLOUDY
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700 - 1900
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE			TEMPERATURE.
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. COMPLETED DEVELOPMENT FOR RELIEF WELL RW-8.</p> <p>1) PERFORMED SETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 4.5 HRS</p> <p>TOTAL DEV. TIME = 20.0 HRS</p> <p>2. SET DRILL RIG UP ON RELIEF WELL RW-7 AND EXCAVATED A SLURRY PIT.</p> <p>3. PERFORMED PUMA NG TEST ON RELIEF WELL RW-6.</p> <p>PUMPING TIME = 6.0 HRS</p> <p>PUMPING RATE = 219 GAL/MIN</p> <p>DRAWDOWN = 12.4 FT</p> <p>4. BUILT AN ACCESS ROAD AROUND RELIEF WELL RW-7</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1600	9.0	2	WELL DRILLERS	18.0
	SUPPLY TRUCK		0			
	DOZER	1100 1300	2.0	1	SUPERINTENDENT	7.5
	SUBMERSIBLE PUMP	0730 1900	10.0	2	MACHINE OPERATOR	15.0
	GENERATOR	0730 1900	10.0	1	LABORER	7.5
	BACKHOE	0730 1330	5.5	1	PUMP OPERATOR	11.0
	FRONT LOADER	0730 1500	7.0			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 62	
TO: MR. JAMES LEONARD						DATE 5 FEB 86	
PROJECT TOWNSEND LAKE, VERMONT						CONTRACT NUMBER DAGW33-85-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - E. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.						WEATHER LOW CLOUDY 40's F	
PORITION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1700	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL /	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. ADVANCED A 23 IN. Dia. HOLE FOR RELIEF WELL RW-7 TO A DEPTH OF 49 FT.</p> <p>2. PERFORMED A PUMPING TEST ON RELIEF WELL RW-9. PUMPING TIME = 6.0 HRS.</p> <p>PUMPING RATE = 219 GAL/MIN</p> <p>DRAWDOWN = 18.2 FT</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 63	
TO: MR. JAMES LEONARD						DATE 6 FEB 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACLW33-BS-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R. E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER MID SUNNY AND SLIGHTLY 10' SF WINDY	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700-1630	
						TEMPERATURE.	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. WELDED AND INSTALLED WELL SCREEN AND RISER PIPE FOR RELIEF WELL RW-7. LENGTH OF WELL SCREEN = 34.5 FT. LENGTH OF RISER = 17.5 FT.</p> <p>2. PERFORMED PUMPING TEST ON RELIEF WELL RW-8.</p> <p>PUMPING TIME = 6.0 HRS PUMPING RATE = 250 GAL/MIN DRAWDOWN = 13.3 FT</p> <p>3. INSTALLED PRECAST CONCRETE OUTLET STRUCTURE FOR RELIEF WELL RW-9.</p>							
<u>REMARKS</u>							
<p>1. JOHN SUJAT (USCE-NED) VISITED SITE TO DISCUSS PAY ITEMS.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO. PAGE NO(S).

CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED		NUMBER OF MEN	OCCUPATION	TOTAL HOURS
		START	END			
	DRILL RIG	0700	1600	9.0	2 WELL DRILLERS	19.0
	SUPPLY TRUCK			0		
	DOZER	1330	1500	1.5	PUMP OPERATOR	7.5
	SUBMERSIBLE PUMP	0800	1430	6.5		
	GENERATOR	0800	1430	6.5	SUPERINTENDENT	8.0
				2	MACHINE OPERATOR	16.0
	BACKHOE	0800	1600	7.5	LABORER	8.0
	FRONT LOADER	0800	1630	8.0		

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 54	
TO: MR. JAMES LEONARD						DATE 7 FEB 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACW33-BS-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER MID CLOUDY 10'S F	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1530	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		TEMPERATURE	
						MINIMUM MAXIMUM	
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET TIME	
H WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. BEGAN DEVELOPMENT FOR RELIEF WELL RW-7.</p> <p>1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 6.0 HRS</p> <p>2. COMPLETED CLEAN UP OF SEEPAGE POOL.</p> <p>3. BROKE UP FROST AT GROUND SURFACE FROM RELIEF WELLS RW-5 AND RW-6 TO COLLECTOR PIPE WITH JACK HAMMER.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.	PAGE NO(S).
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CONTRACTOR'S PLANT			CONTRACTOR'S LABOR			
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1330	6.5	2	WELL DRILLERS	13.0
	SUPPLY TRUCK	0830 0930	1.0			
	DOZER		0	2	MACHINE OPERATORS	15.0
	SUBMERSIBLE PUMP	0730 1330	6.0	1	LABORER	7.5
	GENERATOR	0730 1330	6.0			
	BACKHOE	0730 1530	7.5			
	FRONT LOADER	0730 1530	7.5			
	AIR COMPRESSOR	0730 1530	7.5			

DAILY LOG OF CONSTRUCTION						- EIGHT HOURS 65	
						DATE 10 FEB 86	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DALW 33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER HIGH 20'S F MOSTLY SUNNY	
CONTRACTOR (Or hired labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700 - 1700	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. CONTINUED DEVELOPMENT OF RELIEF WELL RW-7.</p> <p>1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL.</p> <p>2) DEVELOPMENT TIME = 9.5 HRS</p> <p>-CUMULATIVE DEV. TIME = 15.5 HRS</p> <p>2. CONNECTED RELIEF WELL RW-5 TO CONCRETE COLLECTOR PIPE WITH 8 IN. DIA. COAL TAR EPOXY PAINTED DUCTILE IRON PIPE AND INSTALLED CHECK VALVE. CONNECTION BETWEEN DUCTILE IRON AND CONCRETE COLLECTOR PIPE WAS GROUTED WITH A NONSHRINK GROUT. BACKFILL AROUND PIPE WAS CRUSHED STONE. ABOVE PIPE, BACKFILLED EXCAVATION WITH MATERIAL REMOVED FROM EXCAVATION.</p> <p>3. BEGAN EXCAVATION FOR DISCHARGE CHANNEL.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0700 1700	10.0	2	WELL DRILLERS	20.0
	SUPPLY TRUCK		0			
	DOZER		0	1	SUPERINTENDENT	9.5
	SUBMERSIBLE PUMP	0730 1630	9.0	2	MACHINE OPERATORS	19.0
	GENERATOR	0730 1630	9.0	1	LABORER	9.5
	BACKHOE	0730 1630	9.0			
	FRONT LOADER	0730 1700	9.5			

DAILY LOG OF CONSTRUCTION							REPORT NUMBER 66
TO: MR. JAMES LEONARD							DATE 11 FEB 86
PROJECT TOWNSEND LAKE, VERMONT							CONTRACT NUMBER DACP33-85-B-0029
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING INC.							WEATHER LOW CLOUDY ZO'S F
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS							SHIFT 0700-1615
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE			TEMPERATURE.
NUMBER OF GOVERNMENT EMPLOYEES							RIVER STAGE
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. COMPLETED DEVELOPMENT OF RELIEF WELL RW-7</p> <p>1) PERFORMED JETTING FOR 34.5 FT LENGTH OF WELL SCREEN AND REMOVED SAND FROM WELL,</p> <p>2) DEVELOPMENT TIME = 5.0 HRS</p> <p>TOTAL DEVELOPMENT TIME = 20.5 HRS.</p>							
<p>2. CONNECTED RELIEF WELL RW-6 TO CONCRETE COLLECTOR PIPE WITH 8 IN. Dia. COAL TAR EPOXY PAINTED DUCTILE IRON PIPE AND INSTALLED CHECK VALVE. CONNECTION BETWEEN DUCTILE IRON PIPE AND CONCRETE COLLECTOR PIPE WAS GROUTED WITH A NONSHRINK GROUT. BACKFILLED THE EXCAVATION WITH CRUSHED STONE.</p>							
<p>3. CONTINUED EXCAVATION FOR DISCHARGE CHANNEL.</p>							
<p>4. PLACED CONCRETE AROUND RELIEF WELL RW-6.</p>							
<p>5. INSTALLED FLAP VALVE ON RELIEF WELL RW-9.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

ZONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

None

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

None

REFERENCE TO FIELD BROOK RECORD

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 67	
						DATE 12 FEB 86	
TO: MR. JAMES LEONARD						CONTRACT NUMBER DALW33-85-B-0029	
PROJECT TOWNSHEND LAKE, VERMONT						WEATHER MOSTLY LOW 20'S F SUNNY AND WINDY	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						SHIFT 0700-1630	
PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						TEMPERATURE	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL /	LABOR	FEET	TIME H
WORK PERFORMED. (Indicate location, description including number and quantity and payment item) INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. PERFORMED PUMPING TEST ON RELIEF WELL RW-7. PUMPING TIME = 6.0 HRS PUMPING RATE = 214. GAL/MIN DRAWDOWN = 10.4 FT</p> <p>2. INSTALLED PRECAST CONCRETE OUTLET STRUCTURE AROUND RELIEF WELL RW-8 AND BACKFILLED INSIDE OUTLET STRUCTURE WITH CONCRETE SAND.</p> <p>3. INSTALLED FLAP VALVE ON RELIEF WELL RW-8.</p> <p>4. REMOVED SAND COLLECTED IN THE BOTTOM OF ALL 9 RELIEF WELLS.</p> <p>5. CONTINUED EXCAVATION OF DISCHARGE CHANNEL</p> <p>6. WELL DRILLER'S LOADED EQUIPMENT ON TO SUPPLY TRUCK FOR TRANSPORTING TO YARD.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.		PAGE NO(S).				
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG		0	2	WELL DRILLERS	18.0
	SUPPLY TRUCK	1500 1530	0.5			
	DOZER	1400 1530	1.5	1	SUPERINTENDENT	8.5
	SUBMERSIBLE PUMP	0800 1430	6.5	2	MACHINE OPERATORS	17.0
	GENERATOR	0800 1430	6.5	1	LABORER	8.5
	SUCTION PUMP	0830 1500	5.0			
	BACKHOE	0730 1600	8.0			
	FRONT LOADER	0730 1400	6.0			
	AIR COMPRESSOR	0830 1000	1.5			

DAILY LOG OF CONSTRUCTION						REPORT NUMBER 68	
TO: MR. JAMES LEONARD						DATE 13 FEB 86	
PROJECT TOWNSHEND LAKE, VERMONT						CONTRACT NUMBER DACPW33-B5-B-0029	
CONTRACTOR (Or hired Labor) RELIEF WELLS - R.E.CHAPMAN CO. GENERAL - CARROLL EXCAVATING, INC.						WEATHER LOW PARTLY 30'S F SUNNY AND WINDY	
PORITION OF SCHEDULED DAY SUITABLE FOR OPERATIONS						SHIFT 0700 - 1615	
STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE		MINIMUM	MAXIMUM
NUMBER OF GOVERNMENT EMPLOYEES						RIVER STAGE	
SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
WORK PERFORMED. (Indicate location, description including number and quantity and payment item)							
INCLUDE UNDER REMARKS. (Material, visitors, etc.)							
<u>WORK PERFORMED</u>							
<p>1. WELDED ADDITIONAL RISER ON RELIEF WELL RW-7 TO EXTEND 3.5 FT ABOVE FINAL GROUND SURFACE. RELIEF WELL RW-7 INSTALLED PAY LENGTH = 49.0 FT (FROM FINAL GROUND SURFACE - EL. 468.5 FT)</p> <p>2. CONNECTED RELIEF WELL RW-7 TO CONCRETE COLLECTOR PIPE WITH 8 IN. DIA. COAL TAR EPOXY PAINTED DUCTILE IRON PIPE AND INSTALLED CHECK VALVE. CONNECTION BETWEEN DUCTILE IRON PIPE AND CONCRETE COLLECTOR PIPE WAS GROUTED WITH A NONSHRINK GROUT. BACKFILLED WITH CRUSHED STONE.</p> <p>3. PLACED 5 FT CONCRETE PLUG AROUND RELIEF WELLS - RW-5 AND RW-7.</p> <p>4. INSTALLED GALVANIZED WOVEN WIRE MESH ON OUTLET STRUCTURE OPENINGS FOR RELIEF WELLS RW-8 AND RW-9.</p>							
TITLE GEOTECHNICAL ENGINEER				SIGNATURE Charles R. Conlon			

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

NONE

INSTRUCTIONS GIVEN TO CONTRACTOR - INFORMATION RECEIVED FROM CONTRACTOR

NONE

ACCIDENTS AND CAUSE

NONE

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BOOK RECORD

FIELD BOOK NO.			PAGE NO(5).			
CONTRACTOR'S PLANT				CONTRACTOR'S LABOR		
PLANT NO.	EQUIPMENT	TIME USED	TOTAL HOURS	NUMBER OF MEN	OCCUPATION	TOTAL HOURS
	DRILL RIG	0730 0830	1.0	2	WELL DRILLERS	9.0
	SUPPLY TRUCK	0930 1130	2.0			
	DOZER	0930 1030	1.0	2	MACHINE OPERATORS	16.5
	SUBMERSIBLE PUMP		0	1	LABORER	8.25
	GENERATOR		0			
	BACKHOE	0900 1000	1.0			
	FRONT LOADER	0730 1615	8.25			
	AIR COMPRESSOR		0			

DAILY LOG OF CONSTRUCTION

REPORT NUMBER
69DATE
14 FEB 86CONTRACT NUMBER
DACPW33-85-B-0029

TO: MR. JAMES LEONARD

PROJECT

TOWNSHEND LAKE, VERMONT

WEATHER

LOW

30'S F

PARTLY
SUNNYCONTRACTOR (Or hired Labor) RELIEF WELLS - R.E. CHAPMAN CO.
GENERAL - CARROLL EXCAVATING, INC.

SHIFT

0730 - 1530

PORTION OF SCHEDULED DAY SUITABLE FOR OPERATIONS

TEMPERATURE

STRUCTURAL EXCAVATION	BORROW EXCAVATION	EMBANKMENT	CONCRETE	STRUCTURE	MINIMUM	MAXIMUM
4	5	5	4	5		

NUMBER OF GOVERNMENT EMPLOYEES

RIVER STAGE

SUPERVISORY	OFFICE	LAYOUT	INSPECTION	TOTAL	LABOR	FEET	TIME
			1	1			M

WORK PERFORMED. (Indicate location, description including number and quantity and payment item)

INCLUDE UNDER REMARKS. (Material, visitors, etc.)

WORK PERFORMED

1. Poured 4 in THICK CONCRETE SLAB IN CONCRETE OUTLET STRUCTURES FOR RELIEF WELLS RW-8 AND RW-9.
2. INSTALLED STAINLESS STEEL V-NOTCH WEIR.
3. CONTINUED EXCAVATING DRAINAGE CHANNEL.

TITLE

GEOTECHNICAL ENGINEER

SIGNATURE

Charles R. Conlon

DIFFICULTIES ENCOUNTERED AND DELAYS (Account for each hole, monolith, etc., separately)

None

INSTRUCTIONS GIVEN TO CONTRACTOR . INFORMATION RECEIVED FROM CONTRACTOR

NONÉ

ACCIDENTS AND CAUSE

None

SAFETY HAZARDS ENCOUNTERED

NONE

REFERENCE TO FIELD BROOK RECORD

